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## FURTHER HISTOLOGICAL STUDIES ON NEGRITO HAIR : THE ONGES OF THE ANDAMAN ISLANDS

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### *Introduction*

IN an earlier publication (Sarkar and Banerjee 1956) the histological differences between Negrito and Oraon hair in their medullary structure were discussed. The Negrito hair comprised only 6 adult male samples in the above study. Nine more samples (male 5 and female 4) of the same Onges of the Little Andaman Island were available after the above publication. The present study, therefore, is expected to give a better picture of the internal anatomy of the Onge hair. No female sample was available during the earlier study.

### *Method of Study*

The method of study is exactly the same as employed in the earlier study. The hair samples were highly besmeared with fat and red ochre and the initial cleaning and defatting was a tedious process. Each hair coil was unlocked and measured

for its curl dimension and its total length. In straightening a hair coil, care was taken so that the hair strand did not undergo any twist in it. A twist in the hair strand gives a picture identical to that published by Hooton (1947, Pl. 2b), and in the course of our earlier trials it used to occur so often that it was thought to be a character of the Negrito hair shaft, as also indicated by Hooton in the above publication. Then suddenly a few slides showed some form of branching at the twisted point. These slides were very carefully observed under the microscope and it appeared to us that the branching is due to certain longitudinal fibres of the shaft being snapped off at the point of the twist. No branching could be seen in the coiled stage itself; it appeared only when the hair coil was straightened. A coiled hair shaft is like an elastic hollow coiled tube and when it is straightened it is likely to cause a depression or a kink at the point of greatest curvature. Danforth (*cit.* Trotter 1930) also mentions a twist in curly hair. The kink, therefore, does not appear to be any character of the Negrito hair but due to an error in technique, caused by twisting of the hair shaft. Later on, all hair strands were moistened and slowly straightened on the glass slide with the aid of a cover slip along the line of its curvature and neither the twist nor the branching were observed any more in any hair strand.

All studies were made under 10x ocular and 25 mm and 65 mm objective. Diameter of the hair coils were measured by an 7x ocular micrometer and 65 mm objective, each division of the ocular micrometer being equal to 4.4 microns.

### *The Data*

Our earlier studies were based on 6 adult male individuals. Ten hair strands from each of the 5 individuals and 100 from the sixth person were the basis of the earlier data. The above data have been now combined with the later samples and the total number of the data now comprises 15 adult individuals (11 males and 4 females). The observation was extended to 100 hair strands from each individual.

Table 1 shows the frequency of the different types of medulla.

TABLE 1

*Percentile occurrence of frequency of different types of medulla*

Sample No.	Male			
	Age	Absent	Scanty	Broken
1	24	91	3	6
2	32	72	15	13
3	40	91	8	1
4	22	68	12	20
5	28	74	7	19
6*	30	43	17	40
7	36	65	23	12
8*	27	41	34	25
13	48	79	19	2
14	30	63	14	23
15	32	65	14	21
Total mean	31.7	68.4	15.1	16.6
Mean excluding*		74.2	12.8	13.0

Sample No.	Female			
	Age	Absent	Scanty	Broken
9	25	84	16	—
10*	26	41	14	45
11	25	89	10	1
12	35	100	—	—
Total mean	28	78.5	10.0	11.5
Mean excluding*		91.0	8.7	0.3

It will be seen from the above table that in both the sexes 'absent' medulla occurs in much greater frequency than the 'scanty' and 'broken' types. The females show (78.5%) a higher frequency than the males (68.4%). The 'absent' type is seen in much higher percentage than the general average in certain individuals of both sexes. Among the

males, it occurs in the highest percentage of 91 in two individuals, while among the females, nearly the same percentage is met with in three individuals, (Sample Nos. 9, 11 & 12). On the other hand, two males (Nos. 6 & 8) and one female (No. 10) show a different picture in having very low percentages of the 'absent' type of medulla, the percentages being 43, 41 and 41 respectively. Two of these three individuals correspondingly show the highest percentage of the 'broken' type of medulla ; the third one shows the highest percentage of the 'scanty' type.

Among the males, the 'scanty' type of medulla occurs in the highest frequency of 34% and the lowest frequency of 7% and the 'broken' type varies between the maximum of 40% and the minimum of 1%. Among the females, 'scanty' medulla varies between 10% and 16% and the 'broken' type has been found in two individuals only. Sample No. 10 shows it in 45%, while another shows only one percent of it. For this peculiarity in the medullary structure, the above three individuals have been separately treated, as shown in Table 1.

It will also be apparent from the above table that the two sets of means, total and that excluding samples 6 & 8, for the 'scanty' and the 'broken' types of medullae are almost equal in the male group, but among the females while the total means are equal, that derived after the exclusion of sample No. 10, is widely divergent. This may, however, be due to the small size of the female sample. The females appear to possess a higher percentage of 'absent' medulla than the males ; but nothing definite can be said before a few more females are studied. A certain amount of similarity is also evident in the three samples (6, 8 & 10) in their medullary structure. The 'absent' medulla occurs in 43%, 41% and 41% respectively, while the other two types of medullae in 57%, 59% and 59% respectively. This medullary distribution is entirely different from the others and the general mean. It is difficult to explain this deviation since the physical features of the above individuals are not available. The samples were collected through a friend in Port Blair where Onges occasionally come in their outrigger canoes. It appears that some hybrid element with the 'non-absent' type of medulla is present among the Onges.

Onge hair is fine in texture. The average diameter for the males and the females is 84 and 87 microns respectively. There is a slight variation in the diameter according to the structure of the medulla. In males, hair with 'absent' medulla shows an average diameter of 80 microns in comparison with 85 microns and 87 microns for the 'scanty' and the 'broken' types respectively. In females, the same for the 'absent' medulla is 79 microns and 89 microns, and 93 microns for the 'scanty' and 'broken' respectively.

Table 2 shows the diameter of the various samples of Onge hair in microns.

TABLE 2

*Diameter of hair (in microns) showing relationship with medullation*

Sample No.	Male					
	Absent		Scanty		Broken	
	Range	Mean	Range	Mean	Range	Mean
1	49—99	82	67—105	86	74—101	87
2	44—105	81	80—101	92	79—104	88
3	44—86	61	52—70	61	67	67
4	48—98	77	64—96	82	73—105	85
5	51—92	72	63—88	77	58—99	78
6*	70—114	92	88—112	100	82—121	102
7	70—108	87	79—101	88	61—102	83
8*	57—101	79	52—107	88	71—104	92
13	63—95	78	71—90	82	77—96	83
14	57—104	81	57—110	87	67—102	93
15	64—114	90	52—114	94	79—114	98
Total mean	56—101	80	65—99	85	72—104	87
Mean excluding*	54—100	79	65—97	83	70—103	85
	Female					
	Absent		Scanty		Broken	
	Range	Mean	Range	Mean	Range	Mean
9	54—102	84	63—102	92	—	—
10*	44—95	78	68—101	89	66—110	93
11	54—93	79	66—104	87	107	107**
12	54—96	75	—	—	—	—
Total mean	51—97	79	66—102	89	66—110	93
Mean excluding*	54—99	79	65—103	89	—	—

\*\* Excluded from the mean, only one hair strand was found belonging to this type.

It will be seen therefrom that sample No. 6 shows the highest mean value of all for three medulla types, the range of variation being greatest in the 'broken' type of medulla, while samples No. 8 and 10 fall within the range of Onge variation. The medullary diameter of sample No. 6 thus further supports our contention of a hybrid element.

Onge hair is woolly and peppercorn in form. The diameter of the curl of the hair strand ranges between 1 and 2 mm. No sexual variation could be ascertained in this character of the hair. Onge hair is extremely short in length. The average length of the hair strand in the males is 13.7 mm as against 13.4 mm in the females. The lower mean value of the females is rather peculiar, though much reliance cannot be placed on these means, both of which are based on small samples.

TABLE 3  
*Length of hair in mm*

Sample No.	Male							
	Absent		Scanty		Broken		Combined	
	Range	Mean	Range	Mean	Range	Mean	Range	Mean
2	9-14	11	9-14	11	7-15	11	7-15	11
3	7-17	11	11-15	12	10	10	7-15	11
4	7-14	10	9-12	10	9-11	10	7-14	10
5	6-10	8	7-9	8	6-10	8	6-10	8
6*	6-15	10	7-14	10	7-14	10	6-15	10
7	9-20	16	11-19	16	14-18	16	9-20	16
8*	10-25	20	12-27	20	10-26	20	10-27	20
13	7-17	13	7-16	13	11-12	11	7-17	12.3
14	8-32	22	15-28	22	14-27	23	8-32	22.3
15	10-26	20	13-26	19	11-25	19	10-26	19.3
Total mean	8-19	14	10-18	14	10-17.5	13.8	8-19	14
Mean excluding*	8-19	14	10.3-16	14	10.3-17	13.5	7.6-18.6	13.7
	Female							
	Absent		Scanty		Broken		Combined	
	Range	Mean	Range	Mean	Range	Mean	Range	Mean
9	10-16	13	11-16	14	—	—	10-16	13.5
10*	13-30	22	18-30	23	14-32	25	13-32	23.3
11	6-18	12	9-15	12	14	14	6-18	12.6
12	6-20	14	—	—	—	—	6-20	14
Total mean	9-21	15.2	13-20	16.3	14-32	19	9-21.5	16.0
Mean excluding*	7.3-18	13	10-15.5	13	14	14	7.3-18	13.4

It will be seen from the above table that there is little variation in hair length among the males, but among the females sample No. 10 shows the maximum hair length which caused the mean to rise above that of the males.

### *Discussion*

It will be seen from the above data that Negrito hairs are characterized by the highest percentages of 'absent' type of medulla and both the sexes show it. The frequencies of 'scanty' and 'broken' types of medulla are almost equal in the two sexes. The variations in respect of the medulla in the three samples (6, 8 & 10) have already been pointed out. These three individuals show their medullary structure to be completely different from the other Onges. It is difficult to interpret this difference, which appears to be equally manifested in the two sexes, as due to anything but hybridization. So little is known of the other physical characters of the Onges that any observation now will be almost a speculation. The blood groups (Sarkar 1952) of the Onges show a very high frequency of the blood group A (67.65%) while B is present in only 5.88%. This small B is probably indicative of a hybrid element in the Onge population.

The very short length of the Onge hair is probably indicative of some growth-retarding factor in the Negritos. A general growth-retarding factor in the early life of the Negritos is said to be one of the chief causes of dwarfing (Fischer 1950). Martin (1928) has given comparative lengths of hairs of some races in which the ulotrichous hairs, varying between 8—25 cm in length, appears to be much lesser than the cymotrichous and leiotrichous hair. Hairs of other racial groups in our collection show much greater lengths than the Onges. How far shaving affects the hair growth of the Onges is also unknown. Histologically the cortex of Negrito hair is deeply pigmented and numerous medullary cells can be observed in the cortex. The medullary cells in the medulla appear to be rather loosely arranged.

In our previous study we pointed out that the spiralization of hair strands is probably due to the combined effect of the

fineness of the hair strands and the absence of medulla. As a result of the present study we would like to add a third factor, namely, the very short length of the hair strands which undoubtedly helps the process of spiralization.\*

## REFERENCES

- Fischer, Eugen  
1950 *Über die Entstehung der Pygmaen. Zts. Morph. Anth.*, 42.
- Hooton, E. A.  
1947 *Up from the Ape*, Philadelphia.
- Martin, Rudolf  
1928 *Lehrbuch der Anthropologie*, I. Jena.
- Sarkar, S. S.  
1952 Blood groups from the Andaman and Nicobar Islands.  
*Bull. Dept. Anth.*, 1, No. 1.
- Sarkar, S. S. and Banerjee, A. R.  
1956 Histological differences between Negrito and Oraon hair. *Man in India*, 36, 288.
- Trotter, Mildred  
1930 The form, size and colour of head hair in American Whites. *Am. J. Phy. Anth.*, 14, 436.

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# CRANIAL CAPACITY OF BENGALEE SKULLS

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## *Introduction*

CRANIAL capacities in this country have been more calculated on the basis of the Lee-Pearson formula (1901) than actually measured. Gupte (1909), however, measured the cranial capacity of skulls in the collection of the Indian Museum with the help of mustard seeds and a graduated glass cylinder fitted with a wooden plunger, manufactured by Andrew H. Baird of Edinburgh. Gupte measured only 12 Bengalee skulls. The earlier studies on the cranial capacity of Bengalee skulls have been published by Morant (1924) and Dainelli (Stoessiger, 1927).

The present study on cranial capacity is based on 80 skulls from Contai in the district of Midnapur, West Bengal, belonging to the collection of the Department of Anthropology, University of Calcutta. These were collected with the help of Sri Naresh Ganguli, a former student of the Department of Anthropology, Calcutta University, and through the courtesy of the then S. D. O. of Contai Subdivision, at the request of Prof. K. P. Chattopadhyay, Head of the Department of Anthropology. The skulls are of local Hindus who were drowned in the flood by the bursting of the embankment of the sea, during a storm in 1942.<sup>1</sup> The bodies were dumped into several pits.

Of the 80 skulls, 60 appear to be of male sex and the rest female ; 25 skulls appear to be of young adults.

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<sup>1</sup> It was incorrectly stated as famine in the paper 'On the Incidence of Foramen of Civinini and the Porus Crotaphitico-Buccinatorius in Bengali Skulls', by Sipra Guha. (*Man in India*, Vol. 34, 1954).

### *Method of Study and Data*

In determining the cranial capacity, Mollison's Cranial Capacity Cylinder was used and the method described by him<sup>2</sup> has been followed. All the openings of the skulls, except the foramen magnum, were first of all sealed with cotton soaked in molten paraffin in such a way that the latter did not encroach upon the endocranial space.

Each skull was measured thrice and the mean of the three readings has been given (Tables 1 and 2).

TABLE 1

*Cranial measurements in mm, indices and capacity in c. c. (male).*

Skull No.	Length	Breadth	Basilo-bregmatic height	L.B.I.	L.H.I.	B.H.I.	Capacity	Remarks
C.1	163	143	131	87.73	80.37	91.61	1408	Young adult
C.2	156	134	124	85.90	79.49	92.54	1210	Adult
C.3	176	134	133	76.14	75.57	99.25	1380	Adult
C.4	183	141	149	77.05	81.42	105.67	1707	Adult
C.5	168	122	121	72.62	72.02	99.18	1233	Young adult
C.6	172	133	133	77.33	77.33	100.0	1286	Adult
C.10	169	130	129	76.42	76.33	99.23	1290	Adult
C.11	175	125	128	71.43	73.14	102.40	1187	Adult
C.12	170	142	135	83.53	79.41	95.07	1345	Adult
C.13	173	132	130	76.30	75.14	98.48	1416	Young adult
C.14	167	134	132	80.24	79.04	98.51	1428	Young adult
C.15	162	126	129	77.78	79.63	102.38	1163	Adult
C.16	172	133	137	77.33	79.65	103.01	1325	Adult
C.17	176	122	130	69.32	73.86	106.56	1260	Adult
C.18	171	123	130	71.93	76.02	105.69	1293	Young adult
C.19	171	134	119	78.36	69.59	88.81	1180	Adult
C.21	170	128	127	75.24	74.21	99.22	1173	Adult
C.22	182	125	137	68.68	75.27	109.60	1355	Adult
C.23	177	144	132	81.36	74.58	91.67	1510	Adult

<sup>2</sup> Th. Mollison—Spezielle Methoden anthropologischer Messung in Abderhalden, *Handbuch der biologischen Arbeitsmethoden*. Abt. VII, Teil 2.

Skull No.	Length	Breadth	Basilo-bregmatic height	L.B.I.	L.H.I.	B.H.I.	Capacity	Remarks
C.26	164	127	135	77.44	82.32	106.30	1325	Adult
C.27	167	127	126	76.06	75.45	99.21	1200	Young adult
C.28	171	139	138	81.29	80.70	99.28	1440	Adult
C.29	173	135	137	78.03	79.19	101.48	1438	Adult
C.30	166	145	130	87.35	78.31	89.66	1548	Young adult
C.33	172	138	130	80.23	75.54	94.20	1441	Young adult
C.34	171	126	133	73.68	77.78	105.56	1150	Adult
C.36	171	127	128	74.27	74.85	100.79	1258	Adult
C.37	185	132	134	71.35	72.43	101.52	1440	Adult
C.38	169	131	132	77.51	78.11	100.76	1260	Adult
C.39	168	127	124	75.60	73.81	97.64	1057	Adult
C.40	164	128	123	78.05	75.0	96.09	1210	Young adult
C.41	173	136	140	78.61	80.92	102.94	1470	Adult
C.43	167	135	130	80.84	77.84	96.30	1343	Adult
C.44	175	134	136	76.57	77.71	101.49	1426	Adult
C.45	151	128	127	84.77	84.11	99.22	1155	Young adult
C.46	170	130	138	76.47	81.18	106.15	1428	Young adult
C.47	174	128	133	73.56	76.44	103.91	1403	Young adult
C.49	159	137	133	86.16	83.65	97.08	1350	Young adult
C.50	162	132	126	81.48	77.78	95.45	1230	Adult
C.52	169	139	142	82.25	84.02	102.16	1441	Adult
C.54	165	122	132	73.94	80.0	108.20	1240	Young adult
C.55	165	123	124	74.55	75.15	100.81	1150	Young adult
C.56	190	134	142	70.53	74.74	105.97	1526	Adult
C.58	176	131	130	74.43	73.86	99.24	1327	Adult
C.59	167	126	134	75.45	80.24	106.35	1203	Young adult
C.60	171	122	132	71.35	77.19	106.56	1350	Adult
C.61	167	132	138	79.04	82.63	104.55	1243	Young adult
C.62	175	131	134	74.86	76.57	102.29	1396	Adult
C.63	175	123	131	70.29	74.86	106.50	1355	Adult
C.65	162	127	128	78.40	79.01	100.79	1265	Young adult
C.66	174	132	135	75.86	77.59	102.27	1343	Adult
C.67	187	126	134	67.38	71.66	106.35	1293	Adult
C.69	181	127	132	70.17	72.93	103.94	1157	Adult
C.70	182	124	125	68.13	68.68	100.81	1205	Adult

Skull	Length	Breadth	Basilo-bregmatic height	L.B.I.	L.H.I.	B.H.I.	Capacity	Remarks
C.72	181	125	128	69.06	70.72	102.40	1355	Adult
C.73	172	128	127	74.42	73.84	99.22	1262	Adult
C.74	161	130	131	80.75	81.37	100.77	1325	Adult
C.75	175	135	136	77.14	77.71	100.74	1326	Adult
C.80	152	125	119	82.24	78.29	95.20	1096	Adult
C.81	180	131	134	72.78	74.44	102.29	1370	Adult

TABLE 2

*Cranial measurements in mm., indices, and capacity in c. c. (female).*

Skull No	Length	Breadth	Basilo-bregmatic height	L.B.I.	L.H.I.	B.H.I.	Capacity	Remarks
C.7	170	126	129	74.12	75.88	102.38	1273	Adult
C.8	162	120	127	74.07	78.40	105.83	1150	Adult
C.9	152	126	126	82.89	82.89	100.0	1060	Adult
C.20	163	131	122	80.37	74.85	93.13	1288	Young adult
C.24	164	127	125	77.44	76.22	98.43	1198	Adult
C.25	164	125	126	76.22	76.83	100.80	1181	Young adult
C.31	164	123	127	75.0	77.44	103.25	1257	Young adult
C.32	169	129	126	76.33	74.56	97.67	1200	Adult
C.35	163	120	128	73.62	78.53	106.67	1160	Adult
C.42	158	134	134	84.81	84.81	100.0	1200	Adult
C.48	153	130	124	84.97	81.05	95.38	1175	Young adult
C.51	154	135	125	87.66	81.17	92.59	1293	Young adult
C.53	157	118	120	75.16	76.43	101.69	923	Adult
C.57	168	129	126	76.79	75.0	97.67	1240	Adult
C.64	164	124	127	75.0	77.44	103.25	1080	Adult
C.68	168	126	124	75.0	73.81	98.41	1191	Adult
C.71	156	121	121	77.56	77.56	100.0	1105	Young adult
C.76	170	130	123	76.47	72.35	94.62	1243	Adult
C.77	154	122	broken	79.22	—	—	1253	Young adult
C.78	169	130	124	76.92	73.37	95.38	1173	Adult

It will be apparent from Tables 1 and 2 that the cranial capacity varies between 1057 c.c. and 1707 c.c. in the males and between 923 c.c. and 1293 c.c. in the females. The mean capacity of the male skulls is  $1319 \pm 15.4$  c.c. while that of the females,  $1182 \pm 18.7$  c.c. Following the classification of Keith and Krogman (1932), the Contai skulls appear, mainly, to be small, as will be evident from the table below :

	Male	Female	Percentage
Small ( — 1325 c.c.)	31	20	63.8
Medium (1326 c.c. — 1475 c.c.)	25	—	31.2
Large (1476 c.c. + )	4	—	5.0

In absolute linear measurements, the male skulls vary between 151.0 mm and 190.0 mm for length, between 122.0 mm and 145.0 mm for breadth and between 119.0 mm. and 149.0 mm for basilo-bregmatic height. The three respective means are  $168.9 \pm .97$  mm,  $136.5 \pm .73$  mm and  $131.3 \pm .85$  mm. The length of the female skulls varies between 152.0 mm and 170.0 mm with an average of  $162.1 \pm 1.3$  mm, the breadth ranges between 118.0 mm and 135.0 mm with an average of  $126.3 \pm 1.0$  mm, while the basilo-bregmatic height ranges between 120.0 mm and 134.0 mm showing an average of  $125.3 \pm .68$  mm.

### *Head Form and Cranial Capacity*

In order to find out whether there is any relationship between head form and cranial capacity, the following tables have been worked out.

TABLE 3(a)  
*Cranial capacity and Cranial index (male)*

	Mean length	Mean breadth	Mean height	No. of skulls	Percentage	Mean cranial capacity
Hyper dolicho-cranial	181.6	124.4	130.8	5	8.33	1293 c.c.
Dolichocranial	174.4	126.8	130.8	17	28.33	1300 c.c.
Mesocranial	170.2	131.2	132.5	23	38.33	1310 c.c.
Brachycranial	165.4	135.1	131.1	11	18.33	1342 c.c.
Hyper brachy-cranial	161.0	139.8	129.5	4	6.68	1379 c.c.

TABLE 3(b)

*Cranial capacity and Cranial index (female)*

	Mean length	Mean breadth	Mean height	No. of skulls	Percentage	Mean cranial capacity
Hyper dolicho- cranial	—	—	—	—	—	—
Dolichocranial	165·1	122·0	128·0	3	15·00	1194 c.c.
Mesocranial	163·9	125·2	124·4	12	60·00	1170 c.c.
Brachycranial	156·5	130·2	126·5	4	20·00	1181 c.c.
Hyper brachy- cranial	154·0	135·0	125·0	1	5·00	1293 c.c.

It will be seen from Table 3(a) that the average cranial capacity in the male skulls increases with the increase of cranial index. The female skulls in Table 3(b) show a variation in this respect which may be due to the small number of the samples. The tendency of a high cranial capacity is, however, obvious in the single hyper brachy-cranial skull.

TABLE 4(a)

*Cranial capacity and Length-height index (male)*

	Mean length	Mean breadth	Mean height	No. of skulls	Percentage	Mean cranial capacity
Chamecranial	176·5	129·0	122·0	2	3·33	1192 c.c.
Orthocranial	177·0	128·3	130·1	16	26·67	1298 c.c.
Hypsicranial	168·2	131·7	132·4	42	70·0	1335 c.c.

TABLE 4(b)

*Cranial capacity and Length-height index (female)*

	Mean length	Mean breadth	Mean height	No. of skulls	Percentage	Mean cranial capacity
Chamecranial	—	—	—	—	—	—
Orthocranial	167·8	129·2	123·8	5	26·32	1219 c.c.
Hypsicranial	160·6	125·5	126·0	14	73·68	1169 c.c.

In the case of length-height index also, the male skulls show a gradual increase in cranial capacity from the chamecranial index to the hypsicranial index. The female skulls

firstly do not show any chamecranial index, and the picture contrary to that of the males may be due to the small number of samples.

TABLE 5(a)  
*Cranial capacity and Breadth-height index (male)*

	Mean length	Mean breadth	Mean height	No. of skulls	Percentage	Mean cranial capacity
Tapeinocranic	169.2	141.5	128.0	4	6.67	1411 c.c.
Metriocranic	163.3	133.1	127.1	9	15.00	1284 c.c.
Acrocranic	172.4	129.2	132.5	47	78.33	1316 c.c.

TABLE 5(b)  
*Cranial capacity and Breadth height index (female)*

	Mean length	Mean breadth	Mean height	No. of skulls	Percentage	Mean cranial capacity
Tapeinocranic	—	—	—	—	—	—
Metriocranic	163.7	130.6	124.2	7	36.84	1230 c.c.
Acrocranic	161.8	124.0	126.2	12	63.16	1148 c.c.

Breadth-height index, contrary to the other two indices, does not show any sequence in either of the two sexes.

It appears that the length-breadth index shows a better picture of the cranial capacity than the other two indices, and the relationship between the two will be clear from Fig. 1.

In Fig. 1 all the skulls have been plotted against length and breadth and the diagonal lines show the different ranges of cranial index. Two curved lines AA and BB show the range of cranial capacity. It will be seen that half of the male skulls and all the female skulls fall above the line AA i.e., within the 'small' range of cranial capacity, while only 31.2% falls within the 'medium' range and there are only 4 skulls which could be classified as 'large', i.e., below the line BB.

It will be apparent from the curves of the cranial indices in Fig. 2 that mesocephalic skulls predominate among both the sexes.

## HEAD BREADTH

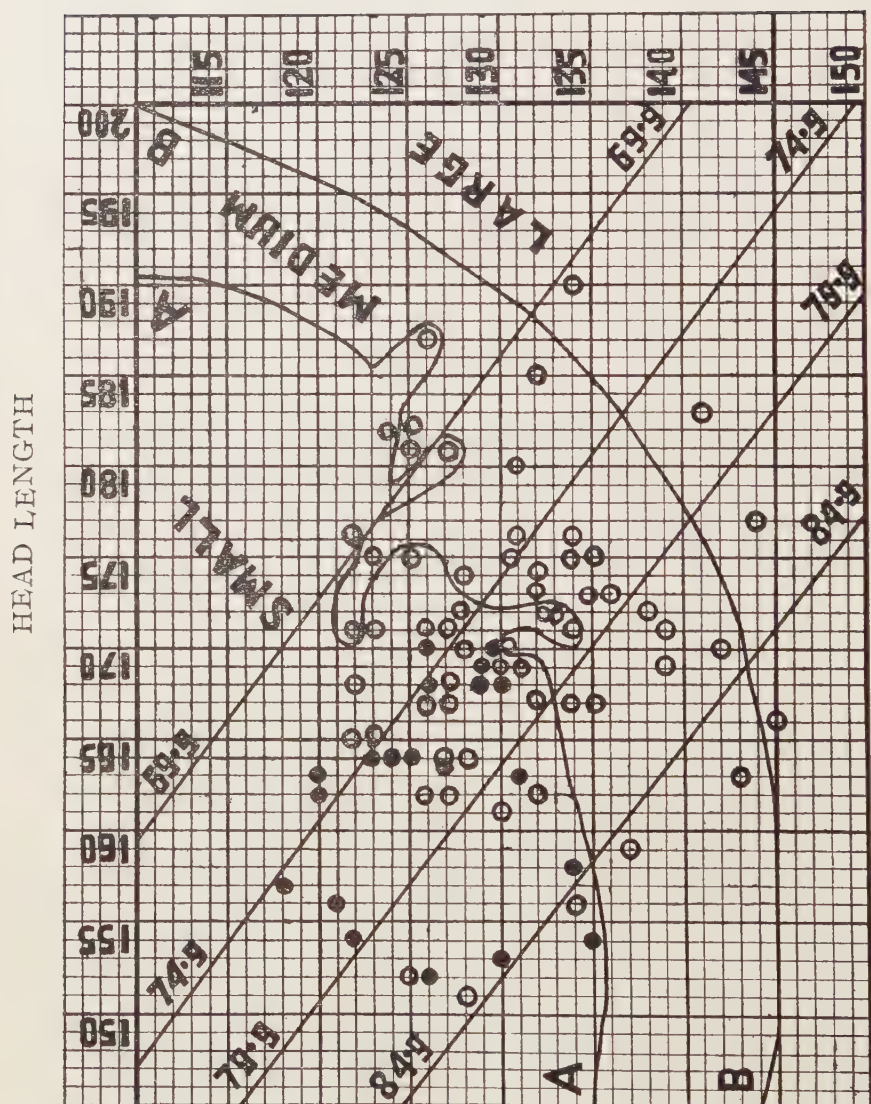
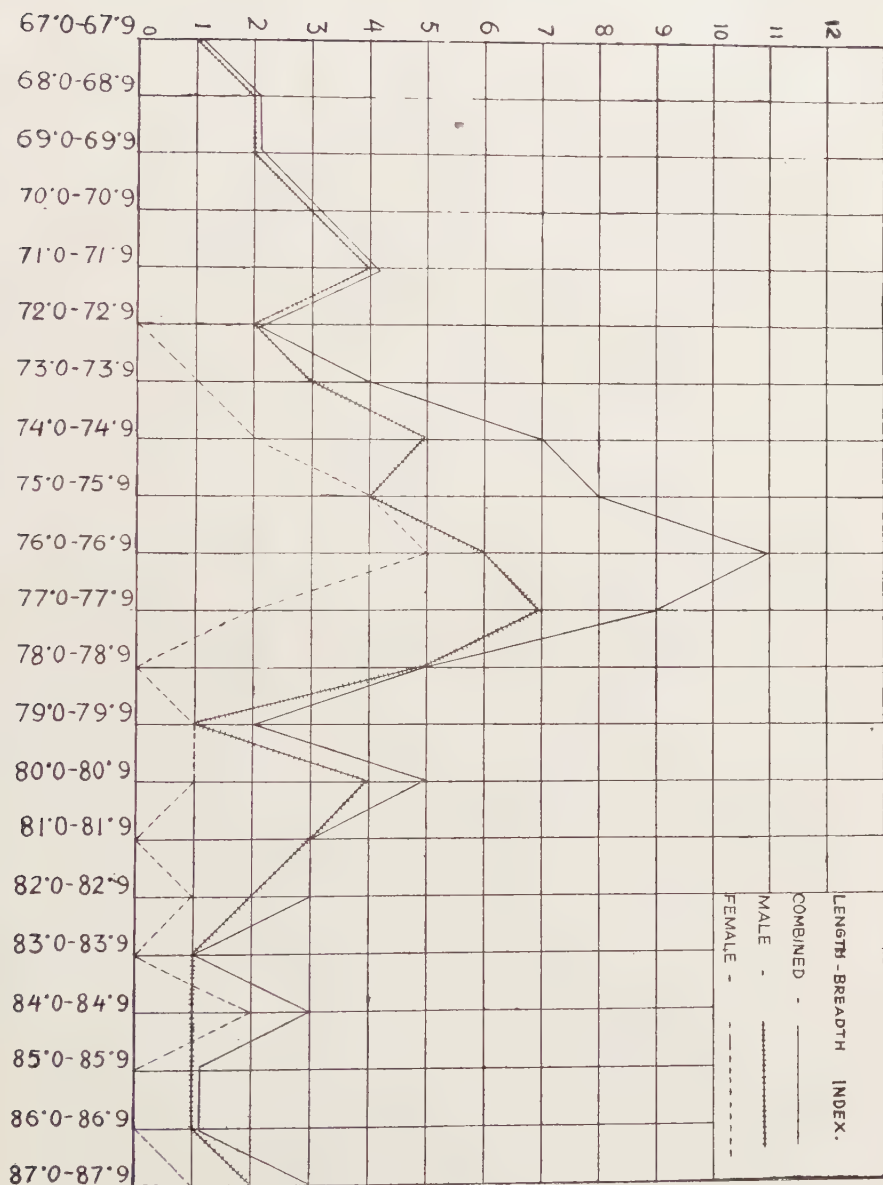


Fig. 1

Fig 2



The Contai skulls are, therefore, predominantly a mesocephalic and a small-brained group.

### *Comparison with Other Data*

The mean cranial capacity of 1319 c.c. of the male Contai skulls agrees very well with that of Morant's (1924) figure of 1319.9 c. c. while those of Dainelli and Gupte, with their respective values of 1368 c.c. and 1377 c.c., compare well with one another. In view of the heterogeneous nature of the earlier samples and also due to the varied nature of methods employed in determining cranial capacity it may be that the very close agreement with Morant's figure and the slight difference with those of Dainelli and Gupte is fortuitous in nature.

The present cranial series, however, has the advantage of being represented from a small geographical area and as such appears to be probably less heterogeneous than the other series.

### *Summary*

1. Cranial capacity has been determined of 80 skulls from Contai in the district of Midnapur, West Bengal, belonging to the collection of the Department of Anthropology, University of Calcutta.

2. In determining cranial capacity, Mollison's Cranial Capacity Cylinder has been used and the method described by him has been followed.

3. Average capacity of male skulls is 1319 c. c. and that of females 1182 c. c.

4. Relationship between cranial capacity and head form has been discussed.

5. The Contai skulls are predominantly a mesocephalic and a small-brained group.

6. Comparison with the previously published data of Morant, Dainelli and Gupte shows slight difference which appears to be fortuitous in nature.

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REFERENCES

1. Gupte, B. A.  
1909 Craniological Data from the Indian Museum, Calcutta.
2. Keith, Arthur and Krogman, W. M.  
1932 The Racial Characters of Southern Arabs in *Arabia Felix*, Bertram Thomas, London.
3. Lee, Alice and Pearson, Karl.  
1901 A First Study of the Correlation of the Human Skull, *Phil. Trans. Roy. Soc. London, Series A*, 196, 241.
4. Morant, G. M.  
1924 A Study of Certain Oriental Series of Crania including the Nepalese and Tibetan Series in the British Museum, *Biometrika* xvi, 1.
5. Stoessiger, Brenda N.  
1927 A Study of the Badarian Crania, *Biometrika*, xix, 110.

# FACTORS AFFECTING FERTILITY

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*(Received on 17th July, 1957)*

## *Introduction*

NATURE manifests itself in a diversity of patterns. The surface of the globe, with high snow-clad mountains, plateaus and alluvial plains, composed of variable components from place to place; the vegetable kingdom with innumerable varieties of fruits and flowers; the wide range of animal species from the highest to the lowest order; the changing climate from the snow-bound arctic region to the hottest desert areas of the tropics—all these bewilder one's imagination. Science is striving to find unity in the diversities of nature. Still it would be futile to attempt to resolve the manifold patterns into a single one. Nature will remain as diverse as ever in her manifestations. Similarly, our social structure is composed of various patterns, which are undergoing an evolutionary and revolutionary change from prehistoric times. During the recent decade the urge for freedom is being manifested even in the most under-developed countries, where land is too meagre and resources too restricted for full economic growth. The signal for readjustment is evident and, unless heeded, disaster may follow soon. Here readjustment means, establishment of a stabilized economy, by bringing about harmony between production and consumption and a reasonably stable population. To this end there are suggestions from different authorities, propounding different theories. Two main but diverse theories have been advanced, one, a neo-Malthusian view, depicted by William Vogt in his book *Road to Survival*<sup>1</sup> and the other, just an opposite view, by J. De Castro in his book, *The Geography of Hunger*.<sup>2</sup> Both views are based on basic and observed facts, have logic behind them and are at the same time full of

authoritative quotations. It may be said that both the opinions are correct and at the same time incorrect. Incorrect in the sense that each is biased by some preconceived notion. This can well be compared to the bias applied to the grid of an electronic tube. The output characteristics can be modified to a desired extent by modifying the bias applied to the grid according to the nature of the tube. William Vogt has painted the future as black and gloomy, and has prophesied a calamity and extinction of the human race in the near future. On the other hand, De Castro is rather over-optimistic. In his opinion, there is not the least possibility of such a state of affairs ; on the contrary, there is a bright future as there is enough arable land, not yet cultivated, for growing food enough for even double or treble the present population of the world. If politicians, scientists and sociologists combine in common effort, hunger can be banished from the face of the earth, even if need be, by means of artificial or synthetic food or by chlorela. This is possible only by bringing about a harmony between production, distribution and consumption. In other words, in the mind of the author, the idea of One World, One Race and One Brotherhood, is uppermost. This is wishful thinking no doubt and will be welcomed by all, but may prove to be just another utopia.

Vogt's conservation theory is quite justifiable for the well-being of society and the human race. There should be harmonious development of the soil, the vegetable kingdom, the animal world and the human race as a whole. One can never thrive at the expense of another. Too rapid growth of a population is sure to deplete the earth of its treasure at a rapid rate and by reclaiming more and more land for cultivation, the animal reserve will dwindle away and the introduction of multiple crops by the use of chemical fertilizers will render the soil, in the near future, quite barren. It may be therefore said that population growth must be checked at any cost so that the balance may be maintained for the well-being of society.

It is admitted that more food can be grown with scientific care and this is sure to better the economic condition of the under-developed countries, and a rise in the standard of



is generally meant that individuals or groups have sufficient money in hand, which they can spend on the necessities of life, for subsistence, for clothings and also for luxuries. The economic condition can be better evaluated by the Engel-ratio, i.e. by determining the expenditure on food as a percentage of the total expenditure. In low economic groups expenditure on food reaches a higher percentage of the total expenditure and very little is left for other expenses. The level might be elevated by growing more food for local consumption and the spare for export, by better utilization of the raw reserves and by adequate industrial development within one's own country. This really is the object of the five-year plans in India.

When there is a definite advance in this direction, individuals will be busy in the field or factory or business and other employments and their minds will be more occupied. With surplus money in hand, they can indulge in manifold activities with a resultant sense of contentment. In some cases, attention may be directed to the study and development of fine arts or other scientific or cultural pursuits. In such circumstances, sex loses its importance, whereas in those deprived of such circumstances and do not have enough work to earn sufficiently even two square meals a day, the question of spending cultural activities cannot come and sexual pleasure becomes the only pleasure. Under such circumstances, depression of economic condition or lowering of standard of living results in increased fertility rate. Such examples abound in all under-developed countries.

### *Dietetic factor*

It is a well-known fact, both in the vegetable and animal kingdom, that so long as a species has a chance of vigorous growth, there is no tendency for reproduction ; but whenever there is apprehension of annihilation or when the species is endangered, there is a corresponding effort for preservation and continuance by rapid reproduction. Even cultivators are well acquainted with this fact. When the paddy plant has a chance of vigorous growth due to sufficient nutrition and suitable conditions, stalks do not appear even when the time

is long past. Creepers of cucumber in very rich soil seldom bear female flowers, while male flowers become abundant. The growers, under such circumstances, shear off the upper half of plants at random, and in quick time stalks begin to appear and female flowers crop up in numbers, signalling the urge for the propagation of the species. This theory was enunciated by Doubleday.<sup>3</sup>

This is equally true in the case of animals. A famous experiment on animals is often quoted by many authorities. This has also been mentioned by Lord Boyd Orr. In two groups of animals, the group which was richly and sufficiently fed produced a much smaller number of litters in a given time, while the other group which was rather poorly and insufficiently fed produced, during the same period, sufficient number of litters. J. R. Slonaker<sup>4</sup> carried on similar experiments on groups of animals with variable amounts of protein in the diet, and studied the effect for six generations. In his experiment, the protein content in diet varied from 10%, 18% and 22% of the total calories of intake and the resulting sterility varied from 6%, 23% and 38% respectively. This was found to be true both for males and females. He suggested that, with inadequate protein, nature multiplied the number of offsprings so as to guarantee the continuance of the species. Here it may also be mentioned that the possibility of sterility due to a rich protein diet is a factor against the normal and healthy development of a society. This is why the treatment for rectification of sterility has been accepted as a part of the function of the family planning movements everywhere.

In India, as reported by McKay and McCarrison, the Sikhs in the Punjab used to a balanced diet, which is rather rich in animal protein, are healthiest among Indians and have a low fertility rate. In contrast, the South Indians and specially the people of Madras, whose diet is rather poor with no animal protein, have generally poor physique and at the same time a high fertility rate. In acute starvation, libido diminishes but in chronic malnutrition it is enhanced and there is evidence of increased fertility in such cases. According to De Castro, this intensification of reproductive ability is due to a complex

process of competition between the physiological and psychological factors. When one retreats, the other advances. There is a direct correlation between food and fertility ; and partial nutritional deficiency accelerates the capacity for multiplication of species.

Biologically, the fecundation in women is closely related to the functioning of the ovary by the production of hormones. Estrogen is a very important hormone but there is another hormone of the ovary, namely, progesterone which is equally important and is directly concerned with conception. It is true that these hormones are largely metabolised and inactivated by the liver, as shown by the liver slice experiment (Grant & Marrian J. 1950<sup>5</sup>). In the interaction of an enzyme and a substrate, the law of mass action is most important. If time is allowed, a small quantity of enzyme can interact with a very large amount of substrate. Even if a small portion of liver is intact, it can inactivate a large amount of estrogen. Cirrhosis of the liver in many of our countrymen, who do not suffer from malaria and alcoholism, must be due to the use of spices and seasoning materials and not to low protein intake. It may be true that low protein intake might make our average countrymen more susceptible to illness or might contribute to their lower vitality and working capacity. But this can in no way be the cause of increased fertility. On the other hand, it might be mentioned in the light of recent researches<sup>6</sup> that P.G.A. (Pteroylglutamic acid) is important for the peripheral activity of estrogen on the uterus. If PGA is antagonized by such antagonists as X methyl PGA or 4 methyl PGA the proliferative activity of estrogen on uterus is diminished, leading to sterility<sup>7</sup> (Hertz & Sebrell 1944). It might be that production of such antagonists is effected during protein metabolism. This aspect has not yet been fully determined. m-Xylohydroquinone<sup>8</sup> which is present in the common field pea can inactivate estrogen and progesterone. Continued use of such food factors might bring down fertility rate. The staple food of Tibet is this pea, ripe and dried (P.S), barley, meat and milk. It might be that by continued use of this diet the population has been steady for the last 200 years

(Pranavananda)<sup>9</sup>. Similarly, Vitamin E is another important constituent for fertility, especially in some animals. So sterility and fertility in women is a complex manifestation of several factors and does not depend on one particular constituent, however important that might be.

### *Effect of Industrialization*

This is another factor which tends to lower the fertility rate of a group or nation. This effect is indirect. Industrialization improves the economy and helps to raise the standard of living which, in turn, brings down the fertility rate. It also produces a direct effect, especially in the case of modern industry capable of faster production. The sex apparatus is very delicate and the constant monotonous dinning of machinery tells upon the nerves affecting fertility. Still more so, in such industries, the same worker is entrusted with the management of a small fraction of production. The man who is entrusted with the slotting of a screw head, has to do the same job perhaps lifelong. In a radio manufacturing industry, one girl only fits up the holders on the chassis for the whole length of her employment in the industry. These are no doubt very effective methods for fast production, but it may be said that the workers are deprived of the pleasure of self-expression which could have only been possible had this been finished by them, working from beginning till the end. In this way, the creative instinct in them becomes gradually suppressed. It was also mentioned by Lorimer<sup>10</sup> that male fertility as found in Brazil is well below the agricultural in all the urban manual occupations.

### *Social and Cultural Factors*

This has been dealt with at length by Lorimer in his book *Culture and Human Fertility*. Social conditions, social institutions of marriage and cultural levels go a long way in the restriction of fertility. In India, child marriage tended to increase the birth-rate. It has been shown that 15 to 20 years of age is the most fertile period and the pregnancy rate in this age group is highest (Sanyal 1956)<sup>11</sup>. The rate gradually declines with advancing age. Polygamy also contributed to some

extent to the high birth-rate of India. With a change in the economic condition and social values polygamy had to be abandoned. In Japan too, during past years, with the gradual improvement in economic condition and through the desire of expansion of territory, high fertility rate was encouraged for increasing the man power. During recent years the movement has been in the opposite direction and even abortion has been legalized to check the rapid growth of population in Japan.

In India the prohibition of widow remarriage acted as a counter-movement to balance the overgrowth. Similarly the practice of infanticide also acted as a check. In China, girls were often sacrificed in many instances to counterbalance the high fertility rate. Females were considered to be a burden to society or to the family, and males were counted as assets and were preserved. During the present change in the economic condition of India, child marriage has been prevented by law and the marriageable age for girls has been raised to 18 years. If this is enforced strictly in the rural areas, it is sure to affect the birth-rate in India.

Again, social restriction in marriages and also economic condition helped to some extent to bring down the fertility rate. In India marriage within the same *gotra* or intercaste marriage was prohibited. Similar restrictions are also reported from among aborigenes, where marriage within the same clan is tabooed. This is beneficial from the eugenic point of view. In very early days, among various tribes the bride had to be won by force. Many such instances are to be found in the pages of history. Marriage has to be delayed in many instances to meet certain demands and this tended to increase the age at marriage and necessarily the chances for more birth were reduced.

### *Religious Injunctions*

This factor has also played a great role in the same direction. It is well known to every one that the followers of the Roman Catholic Church are forbidden the use of contraceptives. It is certain that some day there will be a relaxation of

the stringent rules. It seems that the authorities might have no objection to the use of an oral contraceptive, which is taken as part of food, particularly in the case of m-xylohydroquinone which is nothing other than the active principle of the common field pea.

In India, religious restrictions prevent sexual unions on auspicious days which are considerable in number, amounting to more than one hundred in the year. Among the Egyptian Mohammedans, who can take four wives, there is a custom that after child-birth the wife is not allowed to meet her husband for two years. This is a religious and social restriction to counterbalance the higher number of births due to polygyny.

### *Political Situation*

This is no less an important factor, which rather tends to increase the fertility rate of a nation by undermining the economic condition of the people. For example, it may be mentioned that the dominating race in many places, reclaimed all available land for profitable cash like sugar or tobacco, depriving the local inhabitants of their cereals or other yields of wet cultivation which supplied them their normal food. The tillers of the soil had to work hard to a dividend for the absentee share-holders. For their own consumption they had to depend on imported food, the price of which was sufficiently elevated due to freight and other tariff duties. History will cite many such instances, and this has been well depicted by De Castro in his book.

### *Some Unknown Natural Factors*

It is admitted that after any war, there is a rise in population growth, while it is also the general opinion that male births predominate. This may be due to Nature's balancing effort.

### *Male-Female Ratio*

Females are directly the productive group and the ratio of female to male determines to some extent the fertility rate. If females predominate overwhelmingly, polygyny may ensue, increasing the birth-rate; while on the other hand, high increase

in males may result in polyandry diminishing the birth-rate. Even a slight variation in the ratio may be reflected in the change in birth-rate. This may be verified from the study of the census report of India during the last few decades. What factors are responsible for this variation is hard to suggest. It has already been noted by J. M. Datta (1957)<sup>12</sup> that food might have some relation with it. For analogy, the following experiment might be cited. Pregneninolone has been claimed to possess androgenic activity. In one experiment<sup>13</sup> pregneninolone was administered to tadpole (*Rana pipiens*) from the early larval stage to metamorphosis. It did not affect growth or differentiation but markedly affected sexual development, in the sense that after metamorphosis all the tadpoles became male. Prof. R. Kuhn treated sea urchins with m-xylohydroquinone and always produced males. It is no wonder that in some raw foods there may be traces of some such substances. It has been reputed that some variety of potato contains a cortisone-like substance. Estrogen or estrogen-like substances have been found in the vegetable kingdom.

### *Other Factors*

There are other factors, in no way less important, which might influence the fertility rate. Educational level in a group might make the people more conscious of the evils of untrained population growth ; and under such circumstances they are liable to adjust their marital life or, as is observed in big towns among the educated groups, even postpone marriage indefinitely.

### *Knowledge of Contraceptives*

This knowledge might similarly produce some ultimate effect in the reduction of birth-rate. Even occasional use of one or other contraceptive method might help them to skip off some fertile periods in the cycle.

### *Diseases*

Diseases of a venereal nature have a long-standing serious effect on birth-rate and society. This a veritable menace often contributing to sterility and repeated miscarriages.

Fortunately, there is a strong campaign in all countries against venereal diseases, and in this the efforts of the World Health Organization are praiseworthy. Mumps is another disease of childhood in males particularly, which brings about sterility in the male by blocking the ducts carrying spermatozoa. Of course, this is not very widespread, but still at times it may appear in epidemic form in a group.

### Conclusion

These and many such factors might influence the fertility rate, either working separately or in combination. Also, there might even be an antagonism between the forces, and the fertility rate will then depend on the resultant effect of these forces. In order to make the family planning movement a successful one, attention should be directed, not only to one or other particular method of contraception, but to the proper evaluation of the existing condition of social and cultural problems, the economic level and other relevant factors present among the people. The choice of contraceptive can then only be really decided upon to produce the best desired result. It is to this end that the oral contraceptive, m-xylohydroquinone has been evolved.

### REFERENCES

- <sup>1</sup> Vogt, William,  
1949 *Road to Survival*, Victor Gollancz, London.
- <sup>2</sup> De Castro, J  
1952 *The Geography of Hunger*, Little Brown & Co., Boston.
- <sup>3</sup> Doubleday, Thomas  
1853 *The True Law of Population Shewn to be Connected with Food and The People*, London.
- <sup>4</sup> Slonaker, J. R.  
1925-28 *Am. J. Physiology*, Nos. 71, 83, 96, 97, 98, 123.
- <sup>5</sup> Grant, J. K. & Marrian, G. F.  
1950 *J. Biochem*, 47 497.
- <sup>6</sup> Hertz, R  
1945 *Endocrinology*, 37, 1.
- <sup>7</sup> Hertz R. & Sebrell, W. H.  
1944 *Science*, 37, 1.

- <sup>8</sup> Sanyal, S. N.  
1952 *Cal. Med. Jour*, 49 : 343-359.
- <sup>9</sup> Pranavananda, Swami, of Kailas-Mansarovar. Personal Communication.
- <sup>10</sup> Lorimer, F  
1954 *Culture and Human Fertility*, UNESCO, Zurich.
- <sup>11</sup> Sanyal, S. N.  
1956 *J. Med. & Int. Med. Abs. & Rev.* 19, 3-8 Acta Endocrinol, Suppl. 28.
- <sup>12</sup> Data, Jatindra Mohan  
1957 'Variation in Sex-ratio in Bengal During 150 years', *Man in India*, 37, 2 : 133-148.
- <sup>13</sup> Selye H. & Albert, S  
1942 *J. Pharmacol*, 76, 137.

# MOVEMENT TO SUPPRESS THE CUSTOM OF FEMALE INFANTICIDE IN THE PUNJAB AND KASHMIR

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**I**N a previous issue of this journal, the motives which led to female infanticide among the Bedees and the Chouhans have been discussed. Below is given a brief account of the movement which was launched in the Punjab and Kashmir to abolish the same custom.

Since Jonathan Duncan, the Resident at Benares (and afterwards the Governor of Bombay), discovered the custom of female infanticide in 1789 among the Rajkumars near Benares, the attention of the British authorities was drawn towards it. At different times during the late eighteenth and early nineteenth century, measures were adopted to abolish the practice among the Rajkumars of the above place and the Jadejas of Kathiawad and Katchh. Among certain other classes of people, however, the practice prevailed unnoticed. By the middle of the nineteenth century, Charles Raikes, the Magistrate of Mynpoore, started a campaign against it, for which he came to be regarded as 'the originator of the grand movement' against female infanticide.<sup>1</sup> His example was followed in the Punjab, where, after its annexation, the practice was discovered to be widely in prevalence. From the Punjab the movement was carried into the territories of the Maharaja of Kashmir, and the Kashmir authorities showed keen interest in putting down the practice. As a matter of fact, before British authorities had started their campaign in the Punjab, Maharaja Goolab Singh of Kashmir and Jummoo had issued a procla-

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<sup>1</sup> Board's collections, 1853-54, Vol. 1564, Coll. No. 151171, Minute by R. Montgomery, 16 June, 1853.

mation in December 1847, prohibiting suttee, infanticide, and slavery in his dominions. Goolab Sing had denounced these customs as crimes. For this the Government of India recorded its thanks to the Maharaja and caused his proclamation to be published in a Supplement to the Calcutta Gazette.<sup>2</sup> But in spite of the Maharaja's proclamation the custom of infanticide continued till finally a joint campaign was taken up for its eradication.

After the First Punjab War, the British authorities came to know that there were many hundred families throughout the Punjab among whom a single female child for generations had not been allowed to live, and there were thousands of families among whom the practice of female infanticide was a social custom.<sup>3</sup> But, for the time, no step could be taken to check the practice on account of many intricate questions in reference to the First Sikh War and in the light of gathering troubles in the Punjab. After the final annexation of the Punjab, however, the matter was taken up for consideration.

Late in 1851, Major Lake, the Deputy Commissioner of Goordaspoor in the Punjab, became aware of the existence of infanticide among a class in his own district.<sup>4</sup> He made thorough enquiries and brought it to the notice of the Commissioner of Lahore Division, G. Barnes, who forwarded the report to the Board of Administration.<sup>5</sup> The information that was submitted by Barnes was not sufficient and therefore the Board could not take any general measures. But a circular was sent to all Commissioners, throughout the Punjab, directing them to ascertain whether the crime of infanticide prevailed in their divisions, and if so, what measures they thought were most likely to be effectual in suppressing the practice.

It required some time to investigate into the matter, and by the middle of 1853, reports were received from all

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<sup>2</sup> News in *Hurkaru*, 23 December, 1847.

<sup>3</sup> Board's collections (to be abbreviated as B. C.), 1853-54, Vol. 2564, Coll. No. 151171, Vide letter from P. Melvill, 8 July, 1853.

<sup>4</sup> *Friend of India*, 27 October, 1853.

<sup>5</sup> Selections from Government Records, Punjab, 1857.

the Commissioners. By that time the Board of Administration for the Punjab had been abolished, and the Chief Commissioner, Sir John Lawrence, put the matter in the hands of R. Montgomery for disposal. The reports revealed that infanticide was practised more or less in the Cis-Sutlej States, and in Jullundur, Lahore, Mooltan, Jhelum and Leia divisions. The following abstract will show the classes and the localities in the Punjab infected by the practice of female infanticide.

‘Cis-Sutlej States.—Infanticide prevails among the Rajpoots who inhabit the North-West parts of the Umbala District, in the Tehseeldaree division of Roopur and Khurur : also in some of the Rajpoot villages of Thanesur and Kaeethul. The Burars of the Feerozpore district, who inhabit pergunnas Maree, Fureedkot, and Kot-kapoorra, likewise the Dogurs on the banks of the Sutlej, practise it. There are but few Bedee families, and they are scattered ; but they all follow the custom.

‘Jullundhur Division.—In the Jullundhur and Hooseear-poor districts, it has been heretofore practised by all the Bedees. In the latter, as also in Kangra, it is with few exceptions, followed by the Rajpoot tribes. The Bedees all practise it. Dera Baba Nanuk is their stronghold. The Khutrees of the Goojranwala district, practise it to a limited extent, as also certain Mussulmans of the tribe Rat.

‘Lahore Division.—The higher class of Rajpoots, connected with the royal Rajpoots of the Hills, also follow it. They principally reside in pergunnas Deenanugur and Sukurgurh of the Goordaspoor district, and in pergunna Seealkote, of the Seealkote district. The Munhas tribe of Rajpoots, are those who most practise it also those of the tribe Saleria, Jumooval and Charuk Rajpoots.

‘Mooltan Division.—The Khutrees are said to practise it, and also some Brahminds. The Khutrees who chiefly commit infanticide in the Jhung district, are those of the Khuna and Kupoo tribes, also those of the Urhaeghur branch of the Mahrotra tribe. The Mohomedans of the Bhurwana and Kumalana clans of Seeals, considered to be of imperial rank,

follow the custom. In the Gogaira district it prevails among Hindoos of the following classes :—

Bedees—Dhoun—Vij.

Khutrees, Handee—Khuna—Kupoor.

Chopra

Cotradee of the Arora caste ; and among the Mohamedan tribes as follows :—

Vutoo, Futeana, Kateea, Khuruls, Biloches, Jogeea, Doodhee, Kuth and Awan. It likewise appears to be practised by the Mussulmans of the royal blood of Soodoozaee and Khoduka Patans.

'Jelum Division.—In the Rawalpindee district the Bedees universally follow the practice of infanticide. In the Goojrat district, the Rajpoots, Inhabiting the Northern Pergunnas under the Hills follow it, particularly those of the tribes known as Bhao, Dhib, Ratch and Munhas. In the Shapoor district, the practice is followed by Bedees, Sodhee, Urhaeghur and Mulotur divisions of the Khutree classes and by the following Musulman tribes :—

Bhutee, Khurl, Nuswanah, Gondul, Salee, Geloter and Jahrur. But the Gondul class practise it most extensively, on account of the great expense attending the marriages in this tribe, which custom has descended to the present generation.

'Leia Division.—Infanticide does not prevail in the Dera Ismael Khan and Leia districts, and to a very limited extent in that of Dera Ghazee Khan ; and then only among the Khutrees of the Gosain sects. In the Khanghur district, formerly included in Mooltan, which it adjoins, infanticide is largely practised among the higher classes of Khutree, viz. —the Khuna, Mahrota, Kupoor, Khedana and Set-Kukur classes.

'Peshawar Division.—Infanticide does not prevail either in the Peshawar district, or in Hazara. The above summary shows that Infanticide is very prevalent in the Punjab'.<sup>6</sup>

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<sup>6</sup> Vide Minute on Infanticide in the Punjab by R. Montgomery, Judicial Commissioner in the Punjab. Selections from the Public Correspondence of the Administration, Punjab, Vol. I, Nos. I to VI, 1857.

R. Montgomery, the Judicial Commissioner, proposed to the Punjab Government for the immediate adoption of a few measures. They were to issue proclamations denouncing the crime, to call the heads of the villages to give information of the crime, to take annual census of male and female children, to hold a grand general meeting of the heads of all tribes and classes known to practise it within hundred miles of Amritsar and to call the district officers to throw the whole weight of their influence into the scale.

The Chief Commissioner, John Lawrence, took into consideration the above suggestions. He believed that to suppress the crime it was necessary to effect 'a radical change in the feelings, the prejudices, and the social customs of the people themselves.' He strongly deprecated any strict system of suppression by the police or a system of espionage, but thought that the 'personal influence of British Officers, the knowledge that they take an interest in the matter, a desire by the people to stand well in the eyes of their Rulers, and lastly the fear of punishment, will doubtless from year to year, operate in diminishing the crime.'<sup>7</sup> John Lawrence was astonished to hear about the large sums which the marriage ceremonies necessitated. He was told that 17 lacs of rupees were spent at the marriage of Kunwar Monmohl Sing with the daughter of the Ataa chief; 8 lacs at that of the Raja of Aloowollah. Raja Tej Sing expended a lac of rupees at the wedding of his niece married to the son of a poor Brahmin. Lawrence aimed at attacking this social custom in order to attain the best results.

The measures suggested by Montgomery with all necessary papers were sent by John Lawrence for the consideration of the Governor General, Lord Dalhousie. The Governor General read them, as he said, 'with the deepest interest and gratification.' 'I can conceive no purer or higher source of pride for the public officers of a State, than such a record as this of the wide and rapid success of their exertions on behalf of the honour of our rule in the rescue of suffering

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<sup>7</sup> B. C., 1853-54, Vol. 2561, Coll. No. 151171, Letter from Melvill, Secretary to Chief Commissioner, 8 July, 1853.

humanity,' said Dalhousie.<sup>8</sup> In a private letter he said to Montgomery, 'what you have already effected does you all the highest honour ; and the future will yield you a still more abundant harvest not only of honour, but of that which is far better—the consciousness of having diminished the sum of human ills, in the sphere within which your public lines have moved. You may count over on the best and most cordial aid all my power can furnish.'<sup>9</sup>

The Governor General thought it necessary to give public encouragement to all the officers in the Punjab interested in the matter and wrote, 'The Chief Commissioner of the Punjab and his officers may rely with implicit confidence upon the desire of the Governor General in Council to manifest his appreciation of the wise and benevolent object they have proposed themselves ; and of his readiness to afford them at all times every encouragement and aid which can be supplied by the full measure of his power.' He approved of all the steps proposed by the Judicial Commissioner.<sup>10</sup>

John Lawrence had suggested a rather mild policy without any direct threat to the people on behalf of the Government which as he thought, might 'enlist the feelings of the people against our (the Government) efforts'.<sup>11</sup> But Dalhousie wanted to adopt a strong policy instead of a conciliatory one. He declared that 'the sentiments of the Government in condemnation of this horrible crime should not be left to make their own way upon the convictions of the people, but should be openly proclaimed and enforced by denunciation of certain punishment upon those who are convicted of offending.' The punishment which Dalhousie thought of was severe. 'The destruction of female children is murder, whatever may be the moving cause of the crime ; and that it shall in case of conviction be

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<sup>8</sup> Dalhousie Papers, Governor General's Minutes, Vol. xiii, 8 August, 1853.

<sup>9</sup> D. P., Letters to H. Lawrence and others, Dalhousie to Montgomery 8 August, 1853.

<sup>10</sup> D. P., Governor General's Minutes, Vol. xiii, 8 August, 1853.

<sup>11</sup> B. C., 1853-54, Vol. 2564, Coll. No. 151171, Letter from Melvill, 8 July, 1853.

implacably visited with the punishment justly due to every murderer'.<sup>12</sup> On the other hand, he was prepared to sanction any rewards or honours or even titles to 'a few of those who may have been most forward in abandoning the inhuman practice which their fathers pursued'. The Governor General encouraged the Punjab authorities to arrange the proposed meeting at Amritsar on a grand scale.

John Lawrence left it to Montgomery, the Judicial Commissioner, and G. F. Edmonstone, the Financial Commissioner, to regulate the procedure and affairs of the Amritsar meeting. These two officers took utmost interest to make it a success. They sent numerous invitations to the rajas, sardars and other gentlemen of rank and position to attend the meeting. At the same time, in accordance with the desire of the Governor General, the Punjab Government issued a proclamation denouncing the crime of infanticide, and threatening all who were proved guilty of it, with punishment, as for murder.<sup>13</sup> The Bedees were warned that if they continued to perpetrate the crime, besides incurring the above penalty, they should also forfeit all their jagirs and other pensionary allowances which they received from the Government.

At this time Bedee Bikram Sing was the head of the infanticidal section among the Sikhs. He had always been opposed to the efforts of the officers to suppress the crime. John Lawrence therefore decided not to invite this man to the Amritsar meeting. His claim to the headship of the Bedee clan was considered to be a pretension, and this honour was given to Bedee Sumpoorun Sing who belonged to the older branch of the Bedee family and who was known to the Government as a supporter of the movement. Special invitation was sent to him to attend the meeting.<sup>14</sup>

The grand meeting of Amritsar was held on 29, 30 and 31 October of 1853. The time of the meeting was fixed to coin-

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<sup>12</sup> D. P., Governor General's Minutes, Vol. xiii, 8 August, 1853.

<sup>13</sup> B. C., 1853-54, Vol. 2564, Coll. No. 151171, Report of Montgomery and Edmonstone, 9 December, 1853.

<sup>14</sup> Selections from Government Records, Punjab, I-VI, 1857, Public Correspondence, No. 263, Melvill to Montgomery, 19 September, 1853.

cide with the Dewali festival of the Punjab. Many of the European officers took part, and it was said that 'so large a body of Civil Officers, the representatives of the British Government, were never perhaps before in India collected together'.<sup>15</sup> The number of people assembled was great. Among them were the members of the late darbar, the representatives of all the leading families among the Sikhs, the Chieftains of the Kangra hills, the Bedees of Dera Baba Nanak, the commercial heads of every city of note within two hundred miles of Amritsar, and the delegates from every district representing the agricultural and trading interests. It was marked that they entered 'heartily into the object of the meeting' and 'expressed themselves gratefully for the interest Government had taken in their welfare'.<sup>16</sup> There was 'not a single expression of disapproval, disappointment or displeasure'.

The deliberations continued for three days. At the beginning of the meeting Edmonstone read a translation of the Governor General's letter, conveying his determination to punish all who might be hereafter convicted of female infanticide, as for murder, as well as his readiness to confer honorary distinctions on those who might cordially cooperate with the officers of Government, in extirpating the inhuman practice.

On the closing day of the meeting, an *Ikrarnamah* or agreement was signed by all the heads of the representatives of the people. It said, 'The crime of infanticide being so hateful to God, and exorable in the eyes of Government, and of all pious and goodmen, we will, at once, cause the apprehension of any person of our tribe who may perpetrate the crime in our illaquahs, or villages, and bring the same to the notice of the authorities; and we will expel from caste any person who may refuse or show reluctance to join in the endeavours to accomplish the above object.' The agreement brought down the marriage expenses to a rather nominal sum, and wanted to abolish such social evils as the gathering of *b h a t s*, *r a e s*, *d u t s*, *b h a n d s*, *n a e e s*, *m i r a s e e s* and beggars on the

<sup>15</sup> B. C., 1853-54, Vol. 2564, Coll. No. 151171, Report of Montgomery and Edmonstone, 9 December, 1853.

<sup>16</sup> *ibid*,

occasion of marriage, who clamorously used to demand charity, and even threatened the parties concerned on their persons with knives and stones. The Rajpoots, Bedees, and the chiefs of different areas drew up separate agreements on marriage expenses according to their different status and social necessities.<sup>17</sup> The British officers were said to have done their best to appeal to the natural feelings of the people, to excite their hopes and arouse fears and the Commissioners felt sure that all that was done at Amristar 'will be long impressed on the recollection of all who witnessed the interesting spectacle, and that it will have the most powerful effect.'

It may be said that a silent change was taking place among the people themselves which made the Government intervention easy. Some of the Rajpoot and Sikh Chiefs had given lead to their people in this respect. The Raja of Mynpoory, who was the leader of the Chouhan Rajpoots, preserved daughters in his own family even though it did not please his people. In the Rajpoot royal house of Kangra, Raja Purmodh Chand, preserved four of his own daughters, though his race was strongly 'addicted to the practice of female infanticide'.<sup>18</sup> For several years past the Raja of Aloowalah earnestly endeavoured to persuade the Bedees of Phugwarah to give up infanticide and with such good effect that when Edwardes saw them in June 1852 there were about 25 Bedee daughters living there.<sup>19</sup> Some of the Sikh leaders like Baba Sumpoorun Sing and Punjab Sing preserved daughters in their families. The religious obstinacy and pride of the race gradually declined. 'Their prestige is gone and their religion is rapidly going out of fashion,' said Montgomery who was himself glad to note that among them 'a strong feeling of abhorrence now exists against the crime'. Some of the individual efforts to save daughters, as described above, were viewed by Govern-

<sup>17</sup> B. C., 1853-54, Vol. 2564, Coll. No. 151171, Report of Montgomery, Appendixes, A, B, C, D and E.

<sup>18</sup> B. C., 1853-54, Vol. 2549, Coll. No. 148980, Edmonstone to Melville, 16 May, 1853.

<sup>19</sup> B. C., 1853-54, Vol. 2564, Coll. No. 151171, Report of Edwardes, 30 June, 1852.

ment with pleasure. About the Raja of Myupoory the Court of Directors wrote to the Indian Government, 'The desire evinced on the part of so old and influential family, to set an example, the moral effect of which is calculated to be so beneficial, should however be recognised by some mark of your approbation.'<sup>20</sup> Raja Purmodh Chand was deposed and punished by the British Government on political grounds and died in exile. But on the recommendation of the Punjab authorities the Governor General in Council became 'willing to help the daughters of the late chief in getting married only in consideration of the creditable fact.....of their having been brought up in a family which belongs to a tribe notoriously addicted to female infanticide.'<sup>21</sup> The Raja of Alloowalah received a letter of thanks, and Punjab Sing Bedee, a K h e l u t.

The grand meeting of Amritsar practically gave a death blow to the crime of female infanticide. John Lawrence believed that the 'success of the meeting was remarkable' and that 'its moral effect will be lasting'. To Lord Dalhousie, it marked 'the commencement of a new social era among a people of the countries beyond the Jumna'.<sup>22</sup>

The Amritsar meeting was followed by a series of other meetings throughout the Punjab. In all the subsequent meetings, the decision of the Governor General was proclaimed, and the Amritsar resolutions were adopted. Since the resolutions reduced the marriage expenses, they were particularly welcome to the people everywhere. Many influential persons put them into practical effect. Dewan Harichand who held a high office under the Maharaja of Kashmir carried out the ceremonial expenses at his daughter's wedding 'strictly according to the spirit of the Amritsar agreement'. In the marriage of a daughter three years ago Harichand spent 15,000 rupees, but after the Amritsar meeting he spent only 1,000 rupees at the marriage ceremony of his next daughter.

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<sup>20</sup> India and Bengal Despatches, 1851, Vol. 69, fos. 902-6, Court's Despatch, 19 March, 1851.

<sup>21</sup> B. C., 1853-54, Vol. 2549, Coll. No. 148980, Government of India to Chief Commissioner, 9 June, 1853.

<sup>22</sup> D. P., G. G's. Minutes, Vol. XV,

The most important of all the meetings held after that of Amritsar was one on the border of Kashmir to bring the infanticidal tribes of Jummoo under the new influence. When the British officers launched their campaign in the Punjab and everywhere met with success, the Kashmir authorities desired to avail themselves of the benefits of the new movement. In March 1854, Charles Raikes who was perhaps the most enthusiastic among the British officers, received an invitation from Prince Runbeer Sing, the son of Maharaja Goolab Sing, to unite with him in calling upon the Rajpoot and other tribes under the Kashmir hills, to suppress female infanticide, and to regulate marriage expenses. Raikes thought that a meeting of this sort would benefit the people of his own division, as much as those across the border, and after consulting Montgomery, he agreed to meet the Prince on the frontier of his territories at a village called Bhureal, about 14 miles from Seealkote and 12 from Jummoo.<sup>23</sup>

When his intention became known to John Lawrence, he disapproved of it and said, 'If you have not had your Infanticide meeting at Jummoo, I think it would be well not to have it. However excellent the object, Government would probably object to any interference in an independent territory'.<sup>24</sup>

The letter from Lawrence was issued on 15th March, but before it had reached Raikes, he was already at Bhureal, and the meeting took place on 16 and 17 March. It was held in the durbar tents of the Prince, attended by a vast assemblage of the influential land-holders, from the district of Seealkote and from the adjoining Jummoo territory. The Prince took a leading part in the proceedings of the meeting. He produced a scale of expenses for wedding occasions and for two days the discussion of this scale was carried on. Eventually it was accepted. After the agreements had been signed, Charles Raikes read the proclamation of the Governor General and gave a short account of the proceedings at Mynpoory,

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<sup>23</sup> D. P., No. 131, Selections from Public Correspondence, Raikes to Montgomery, 20 March, 1854.

<sup>24</sup> Lawrence papers, No. 2a, f. 162, Lawrence to Raikes, 15 March, 1854.

Jullundhur, Hoosheerpoor and Amritsar, asking the people to accept his proposals and promise to put down the child murder in the presence of the Prince and the British officers there assembled. The response was hearty and Raikes said that 'both Prince and people will unite in this great reform'.<sup>25</sup>

The Prince was seen to be thoroughly in earnest. It came to the knowledge of Raikes that ever since the Amritsar meeting he had fully 'addressed himself to the task of putting down female infanticide within his father's dominions'. To test his sincerity further, Raikes requested the Prince to give up a cess of rupees one hundred which had been hitherto levied on each wedding completed in his territories by persons resident on the British side of the border, and he at once passed his word that from the day of the meeting the tax should be abolished'.<sup>26</sup>

At the end of the business Raikes said to Montgomery, 'The social reform, which has already to my certain knowledge made real and substantial progress in our Punjab territories, will extend to the Kashmir mountains, and will be hailed with gratitude in every town and village. On this point the people at large, on either side of the border, feel alike; they rejoice at any excuse, for shaking off a tyrannical custom which has hitherto plunged most families into debt'. Raikes requested the Punjab authorities to bring the conduct of Prince Runbeer Sing to the favourable notice of the Governor General.<sup>27</sup>

Dalhousie received information about the above proceedings from private sources and immediately wrote to Raikes, 'Without expending a sentence in assuring you of that full and cordial approbation with which I have learned your meeting with Meer Runbeer Sing, I beg to congratulate you on the spreading success of the measures which you were the first to mould, and in the influence they are already exercising over

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<sup>25</sup> D. P., No. 131, Raikes to Montgomery, 20 March, 1854.

<sup>26</sup> *Ibid.*

<sup>27</sup> *Ibid.*

other rules, as well as our own. There is genuine pleasure in such a sight'.<sup>28</sup>

When all the meetings were concluded in the Punjab, John Lawrence sent a comprehensive report on them to the Governor General. He agreed with Charles Raikes and Montgomery in thinking that Prince Runbeer Sing merited some notice from the Government of India for his thoroughly earnest efforts.

Dalhousie repeated his sentiments on the social importance of this subject as he had done on previous occasions. He said, 'The success already achieved within the space of a few months has far exceeded the most sanguine anticipations of the Government ; and I venture to utter a feeling of humble confidence that a blessing will rest on this good work, whereby it shall be made to spread and prosper'.<sup>29</sup>

The Governor General sent a *khurēta* to Maharaja Goolab Sing and another to his son, couched in complimentary and appropriate terms. To the Prince he said, 'This laudable intention of yours has gratified me much. The eradication of a custom which is revolting to the feelings of nature, will be a sure means of acquiring a good name in the world. I am persuaded however that this wicked practice will be entirely abolished in a short time by your adoption of proper measures.' The Maharaja was thanked for his principles of justice and the best exertions to abolish that crime of the blackest dye.<sup>30</sup>

By April 1854, all the supplementary meetings were over. Everywhere the people showed a lively interest. They were now able to preserve their daughters and proudly show them, so it was said, 'without fear of being treated as mahters (sweepers), as one heroic Bedee father was in the days of Sikh rule'. It was also hoped that 'Infanticide will soon be

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<sup>28</sup> D. P., Miscellaneous Letters to Various Persons in India, Vol. vii, Dalhousie to Raikes, 27 March, 1854.

<sup>29</sup> D. P., Governor General's Minutes, Vol. xviii, 13 May, 1854.

<sup>30</sup> B C., 1854-55, Vol. 2609, Coll. No. 164216, Letters from Governor General to Runbeer Sing & Goolab Sing, 25 May, 1854.

in the Punjab what Suttee (Sati) is to India at large,...a thing to be wondered at in recollection'.<sup>31</sup>

The abolition of the crime in the Punjab led to its subsequent suppression elsewhere. The movement spread into the jurisdictions of the Indian princes. Upon the report of Lieutenant Colonel Sleeman, the Court of Directors took a serious view of the fact that 'the officers of the Oude Government have made little progress in putting down infanticide'.<sup>32</sup> It was observed with pleasure that the Raja of Neemrana exerted himself for the extirpation of this barbarous practice.<sup>33</sup> The Raja of Rewah aided with success in the suppression of infanticide in his state. At many other places a similar movement was carried on with success.

It is interesting to note that once the movement had succeeded at one place, gradually that antiquated custom began to lose ground everywhere. Modern ideas and education very quickly brought about a more rational way of thinking towards various aspects of social life, and such superstitious customs as infanticide soon became matters of the past.

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<sup>31</sup> *Agra Messenger*, 18 March, 1854.

<sup>32</sup> India & Bengal Despatches, 1854, Vol. 88, f. 1210, Court's Despatch to India, 4 October, 1854.

<sup>33</sup> India and Bengal Despatches, 1855, Vol. 90, f. 1480.

# MICROLITHIC INDUSTRY OF SINGHBHUM

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( Received on 1st August, 1957 )

THE microliths described in this paper were found in the Sanjai valley, near Chakradharpur, in Singhbhum in South Bihar. The place is adjacent to the neolithic celt site<sup>1</sup> which is located on an ancient land-surface at a height of about 65 ft. above the present stream level and covered with a deposit of dark clayey soil interspersed with rubbles of shale and phyllite and a mixture of pebbles and gravels of quartzite and other rocks. Gully erosion of the land-surface towards the river is marked and the microliths are found on the slopes of this high ground, mostly in between the gullies facing the river. No section has yet been observed showing the stratigraphic position of the microliths vis-a-vis the celts. Microliths occur very rarely, however, on the top of the high ground where pottery and celts are concentrated. Instead, the microliths are concentrated on the slopes.

The microliths are apparently derived from a lower zone underlying the celts. There is another surface site about two miles south-east of the celt site along the Sanjai valley where on the dissected slopes of the Chakradharpur peneplain microliths are found. Unless excavations are carried out and the relative position of the implements is revealed, nothing about its age can at present be asserted. Under the circumstance, these microliths are being treated as surface finds.

In all, 173 specimens were collected from these sites. The state of preservation of these specimens is generally good. Only a few specimens have acquired a brownish patination or have undergone some weathering. The material used is chert, flint or trap rock.

The microliths here constitute an industry predominated

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<sup>1</sup> *Man In India*, Vol. 30, No. 1, 1950 ; Vol. 35, No. 4, 1955.

by flake-blades and appropriate cores. The blades have unwork-

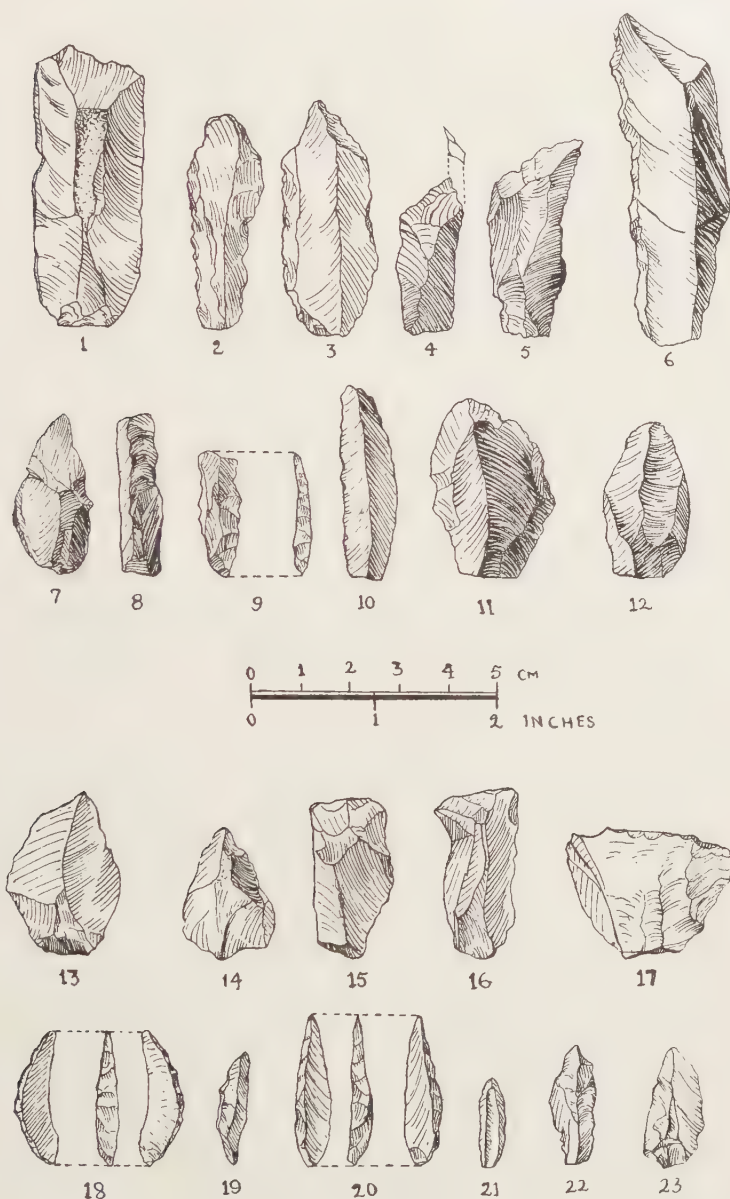


Fig.1

ed main flake surface and rare retouching, and include straight

blunt back and curved back types. Besides, there are

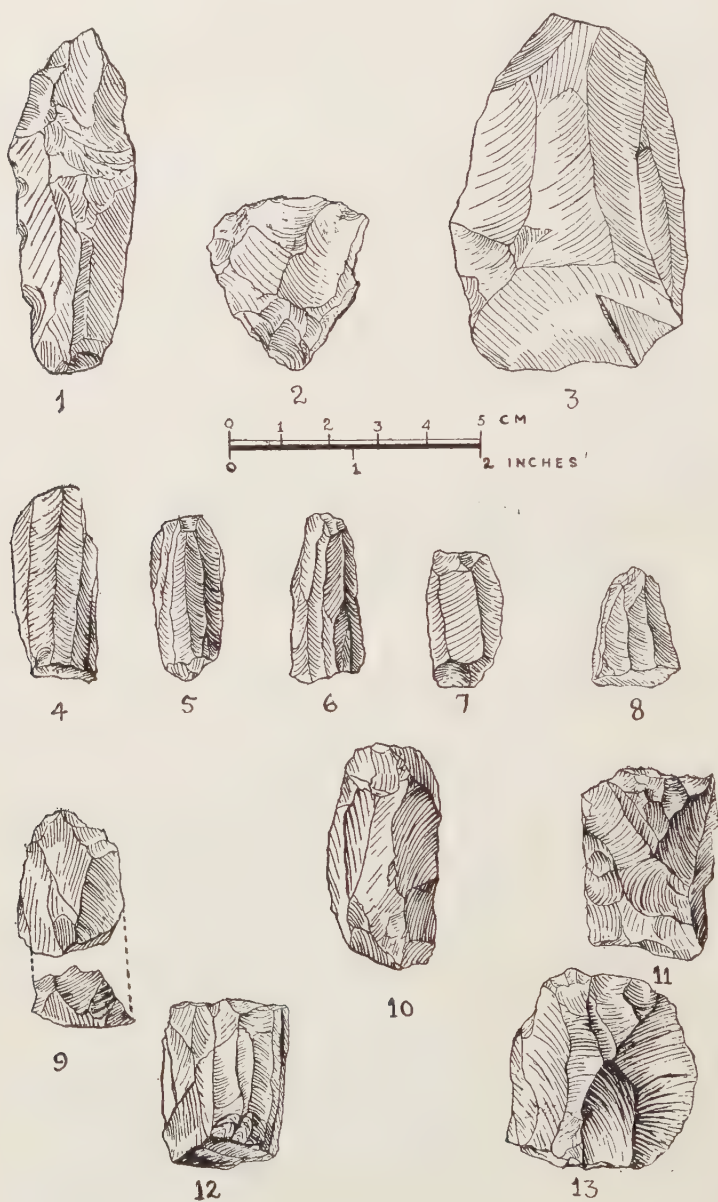


Fig.2

almond-shaped points made on flakes worked on the margins

and on the dorsal surface. A few arrowheads, scrapers on blade and a small number of geometric forms, such as the lunate, semi-lunate and trapeze also occur. Besides the microliths, there are other finished implements like the crudely made core-scrapers and a specimen of pseudo-awl. Some of the blades have been worked into points. The lunates generally have arched blunt backs due to secondary working and straight or curved working edge. Almost all the specimens, barring a few evolved types, such as, the geometric forms or the blunt backed blades, show a crude technique employed in their manufacture. There is either nominal or no retouching. Alongside the finished implements, a large number of cores and waste flakes occur as by-products.

The specimens can broadly be divided into two main groups :—

A. Finished implements

B. By-products

The finished implements consist of microliths and other tools. The by-products consist of cores and utilized and unutilized flakes.

### *Microliths*

The microliths can be classified into the following groups :—

I. Blades ; II. Points ; III. Scrapers ; IV. Geometric forms and V. Arrowheads.

I. *Blades* ( Fig. 1, nos. 1-6, 8-10)

The largest number of finished implements belongs to this group. There is a great range in size varying from 7·2 cm. to 2·2 cm. According to technique and form, these specimens can be subdivided as :

(a) Roughly rectangular in form having parallel sides and a broad straight edge ( Fig. I, nos. 1, 2 ) : These blades have little secondary working. Usually they have longitudinal scars with either pronounced medial ridges or truncated ridges. Many specimens bear signs of use.

(b) Roughly rectangular in form having parallel sides with one of the working ends pointed ( Fig. I, nos. 3, 4 ) : The specimens have longitudinal flake scars. The sides are

uniformly parallel and show signs of utilization. One of the edges in this variety is rendered pointed by giving vertical strokes on either side by holding the specimen horizontally. A variant of this type ( Fig. I, no. 4 ) shows wavy medial ridge and a triangular working end which is faceted on one side. The other margin remains unworked.

(c) *Backed blades* :—(i) Blunt backed type (Fig. I, no. 9). The bigger and coarser type is made by taking off large flakes from one of the sides so that the specimen becomes blunt, the other side remaining sharp. The other finer type ( Fig. I, no. 9 ) is more neatly made and is smaller in size. It has its back blunted by minute flake scars, common with the blunt backed lunates and shows ribbon flaking on the dorsal surface.

(ii) Sharp backed type (Fig. I. no. 8) : The margins are parallel to each other and are sharpened, but the medial ridge is removed to one side giving the implement a back which perhaps provided finger-rest or facilitated hafting.

(d) *Curved blades* ( Fig. I, no. 10 ) : These have longitudinal scars and well-marked medial ridges. There is little or no secondary working. The body is slightly curved towards one of the ends. The edges are as a rule straight and broad. In some specimens, the medial ridge is truncated.

(e) *Pen-knife blades* (Fig. I, nos. 5, 6) : These have parallel sides and roughly rectangular form, with one of the sides slightly curved and blunted towards the edge. This curved side ends in a lateral point. The specimens are generally chipped longitudinally. A small platform, often the cortex, is left on the lower half of the outer side which gives it a blunted surface. The edge adjacent to this surface is curved and faceted. The cross-section at the pointed end is triangular. The specimens bear signs of utilization. The serrated margin might have been used as a saw and the point as a lateral graver.

## II. *Points* ( Fig. 1, nos. 7, 11-13 )

Almost all the specimens are subtriangular or almond-shaped. These are crude implements without any secondary working, and have an unworked main flake surface with prominent bulb or bulbar scar. In some specimens, trimming

has been done on the margins only. Flakes have been taken off from the butt-end towards the working edge. There is no trace of striking platform. The sides taper towards the working edge ending in a point. This type can be divided into the following groups :

(a) Points with narrow butt-end ( Fig. I, no. 11 ). These are flat-surfaced and thinner in section towards the working edge. The dorsal surface is longitudinally chipped. Margins show few transverse flake scars. Butt-end has been narrowed down by giving two oblique strokes on either side, one on the dorsal and the other on the ventral surface. The lateral margins taper towards the working edge.

(b) Points with broad butt-end ( Fig. I, nos. 7, 12, 13 ). These can be subdivided as follows :

(i) With flat surface ( Fig. I, no. 12 ) : The main flake surface is entirely unworked. The dorsal surface shows longitudinal flake scars. The butt-end is broad and straight. Sides are sharp and taper towards the point.

(ii) With concave ventral surface ( Fig. I, no. 7 ) : The ventral surface is concave and gives the specimen a curved look. The dorsal surface has longitudinal scars which are checked halfway by a transverse scar towards the pointed edge. Lateral margins taper towards the working edge, ending in a sharp point.

(iii) With convex dorsal surface ( Fig. I, no. 13 ) : The main flake surface is flat and unworked. The upper convex surface shows primary longitudinal scars. The lateral margins are sharp but slightly serrated, perhaps due to use, and converge towards the pointed working edge.

III. *Scrapers* ( Fig. I, nos. 15-16 ) : Only two specimens of end-scrapers on blade have been found. Besides primary longitudinal scars, there is secondary working towards the working end which is convex. This edge is brought about by the intersection of the dorsal flake scars with the main flake surface.

IV. *Geometric forms* ( Fig. I, nos. 17-21 ) : This group consists of (a) lunates, (b) semi-lunates and, (c) trapezes.

(a) *Lunates* : (i) Blunt back with straight edge ( Fig. I,

no. 19 ). The specimens show longitudinal flake scars on the upper surface. The back has been blunted by minute transverse flake scars. The edge is straight and sharp.

(ii) Blunt back with crescentic edge (Fig. I, no. 18). The specimen has one of the edges broader than the other, the back is blunted and arched in the same manner as in the above.

(b) *Semi-lunates* (Fig. I, nos. 20, 21): This type is represented by two specimens only, one 3.3 cm. long and the other 1.7 cm. The specimens show longitudinal scars on the upper surface with truncated ridges. These have a straight and sharp cutting edge and a slightly curved sharp back in one specimen ( no. 21 ) and blunted back in the other ( no. 20 ). One of the ends in the former is curved and rounded, that of the latter is straight.

(c) *Trapeze* (Fig. I, no. 17): The only specimen of its kind is 3.3 cm. long and 2.4 cm. broad. The main flake surface is unworked and shows a prominent bulb of percussion. The upper surface has longitudinal flake scars. The straight sharp edge shows minute secondary working. The specimen might have been used as a transverse arrowhead.

V. *Arrowhead* ( Fig. I, nos. 14, 22-23 ): The type is rare. There are two varieties: (i) Tanged arrowhead (Fig. I, no. 22 ): This is the only specimen of its kind. The working edge is pointed and the butt is straight. One of the sides is partly straight having small notches and partly curved tapering down towards the working edge. The other margin is roughly straight and a small facet is present on the working end. The tool appears like a graver.

(ii) *Triangular arrowheads* ( Fig. I, nos. 14, 23 ): These have flat and unworked main flake surface and have a size ranging between 2.6 cm. and 2.4 cm. The butt-end is broad but has a small projection in the middle. The two sides converge to the working point. The specimens do not show any secondary working.

### *Other Finished Implements*

(a) *End Scrapers on Core* ( Fig. 2, no. 2 ): Usual cortex is left and besides the primary flaking, secondary work has been

done on the peripheries on both upper and lower surfaces giving the specimens a sharp, often wavy, working edge. This is due either to the intersection of flake scars on the dorsal surface with the ventral unworked surface, or to the intersection of flake scars on either surface which renders the edge very sharp. Sizes in this group vary from 3.5 cm. to 6.2 cm.

(b) *End-cum-Side Scrapers on Core* ( Fig. 2, no. 11 ) : A tabular core has been so worked upon on two ends, which are at right angles to each other, as to make them sharp. The ventral surface is flat and unworked. The scrapers are rather crudely made and vary greatly in size and present a marked contrast to the microlithic scrapers.

(c) *Pseudo-Awl* (Fig. 2, no. 1) : A thick (1.6 cm.) and coarse blade, 7 cm. in length and 2.2 cm. in width has been partly worked on the working end. Secondary working is confined to this end only, which has been thinned down to 0.4 cm. by small flakes. The tool is triangular in cross-section at this end. The main flake surface is left unworked and is flat.

### *By-products*

The by-products include cores, core-trimmings and flakes.

I. *Cores* (Fig. 2, nos. 3-10, 12-13 ).

There are about 40 cores in the collection. The striking platforms are usually faceted. The cores can be classified as :

(a) *Having one platform* (Fig. 2, nos. 3, 4, 5, 6, 7, 8) :

Such cores have longitudinal flake scars struck from one platform, thus following only one direction and consequently running parallel to one another. This technique results in fluting. Some of the cores chipped off all round tend to have a rough conical form ( no. 3 ).

(b) *Having two platforms* :

(i) Striking platforms at right angles to each other ( Fig. 2, no. 9 ) : The flakes are taken off from two platforms which are at right angles to each other. These show longitudinal as well as transverse flake scars.

(ii) Striking platforms parallel to each other ( Fig. 2, no. 12 ) : The flakes are taken off from two platforms which are parallel to each other. Though the platforms are parallel, the

flake scars are not necessarily so, because in some, the flake scars do not continue for the whole length of the core. Cores in which the flake scars run parallel down the whole length show fluting.

(c) *Irregular cores* ( Fig. 2, nos. 10, 13 ).

These cores have more than one platform but do not conform to the above mentioned patterns. The flaking is often multi-directional and the flake scars do not follow any of the above-mentioned forms.

The cores vary greatly in size, the biggest being 7.1 cm. and the smallest 2.3 cm. in length. These can be put into three groups, i. e. large, medium and microlithic cores. Large cores are chipped all round and tend to have a pointed end. Some are chipped off from one platform but are not regularly worked. This group includes a small number of cores. Medium-sized cores are most irregular in form. This group accounts for cores with more than one platform. Small or microlithic cores are well shaped and are usually fluted. Medium and microlithic groups of cores have been chipped off partially, that is, a few flakes have been taken out from one side and the remaining portion is left untouched. At times no effort is made to prepare the core before removing the flakes, instead the flakes are removed only from the portion which provides a natural working face.

## II. *Flakes*

These include utilized flakes and unutilized waste flakes.

The utilized flakes, though not worked to any particular form, have undergone use. Some of them have been worked upon as much as is enough to serve the user's purpose. These are usually the pointed flakes which have been slightly retouched on the pointed edge only. Some irregular flakes have sub-triangular or trapezoidal form and have undergone use, but have not been retouched.

The unutilized waste flakes account for a large number and are either core trimmings or flakes which have been fractured by mis-hits. Of the unfinished specimens, there are flake-blades which have been left without being given the necessary trim-

ming strokes and are too thick to be of any use. Some of them have secondary working but do not show any sign of use.

The finished implements account for about 30% of the total. The remaining 70% consists of cores, core trimming and flakes. The exact number of different types and their proportion is as follows :

*Finished Implements*

*Microliths*

I. Blades	29
II. Arrowheads	3
III. Points	7
IV. Scrapers on blade	2
V. Geometric forms	5

*Others*

I. Scrapers on core	4
II. Pseudo-awl	1

---

51

(29% approx.)

*By-products*

I. Cores	40
II. Utilized flakes	3
III. Unutilized flakes	79

---

122

(71% approx.)

The above table shows a predominance of by-products in the collection. About 70% of the material employed in making the implements goes as waste or is utilized later when the need arises. It is only about 30% of the material which attains finished form. The occurrence of finished implements alongside the cores and waste flakes suggests that it was perhaps a factory site.

The industry in the main may be briefly described as a non-geometric microlithic blade-tool industry characterized by a general crudity of technique and workmanship. Evolved types of microliths such as the micro-burin and the geometric

forms like the crescent, the trapeze or the triangle are either rare or absent. Some of the more evolved blunted-back blades, however, show a close typological resemblance to those of the Natufian of Palestine. The backed blades as well as the few crescents and core-scrapers are generally similar to those found in south and central Indian sites. The Singhbhum microliths show almost all the types found at Singrauli in Mirzapur<sup>2</sup> excepting the rare trapeze, the pseudo-awl and the tanged arrowhead which are absent in the latter site. Worked points with secondary retouch, found in Gujarat, Madhya Pradesh and Mysore are so far absent in Singhbhum. Some of the blades without secondary retouch resemble those found in Manbhum.<sup>3</sup> The microlithic sites in Chakradharpur are open stations and are unassociated with any pottery. The general crudity of technique and of typology and the absence of pottery may suggest some antiquity, but since the industry is not found in any definite stratigraphical context, its age is as yet uncertain. Copper implements or slags are entirely absent in the microlithic as well as in the neolithic sites in Chakradharpur. On the whole, however, the Chakradharpur microlithic industry shows a close typological as well as distributional affinity with the Singrauli microliths which occur in a datable geological context.

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<sup>2</sup> Krishnaswami and Soundararajan 'The Lithic tool industry of the Singrauli basin.' *Ancient India*, No. 7, 1951.

<sup>3</sup> G. S. Ray, 'Microlithic Industry of Bongara, Manbhum'. *Man in India*, Vol. 34, No. 1, 1954,

## NOTES ON THE KURMIS

by SHIBA PRASAD BANERJI

*Santipur, West Bengal*

( Received on 22nd March, 1957 )

THE town of Santipur is situated on the bank of the Bhagirathi (  $23^{\circ}15'N$ ,  $88^{\circ}27'E$  ). A large number of Kurmis, apparently migrants from Bihar, have settled in the shallow islands of the river and by the side of its old abandoned courses. They are good cultivators. Shiba Prasad Banerji is an employee of the Municipality of Santipur. He also serves as a priest of Kurmis. The Kurmis were formerly served by priests from Bihar, and Bengali Brahmins of high rank, as Banerji happens to be, did not formerly accept them as clients. Puranjoy Bandopadhyay, formerly Lecturer in Geography in the Presidency College, Calcutta, collected some data about this caste from Shiba Prasad Banerji. The latter's statement is printed below, as it contains some pieces of interesting information. The statement was prepared in English and duly signed. Except for a few slight verbal corrections, it is printed in its original form—*Editor*.

The Kurmis always live by the side of rivers. Kurmi villages are always found to fringe the banks of a river. Two explanations are put forward to account for this,

(a) According to Shib Prasad Banerji, their averse attitude to the so-called civilized people due to the ill-behaviour which they have received from the latter, has made them live in areas away from the densely populated rural areas.

(b) According to Sankar Prasad Banerji ( Shib Prasad Banerji's brother ), they lived by the side of rivers because their forefathers, who were Bargi (Maratha marauders in Bengal during the 18th cent.) found this situation convenient to escape from the attack of the then rulers by means of very swift-running boats.

Formerly there were no well-defined customs among the Kurmis. They did not accept food from any other caste or tribe. Shiba Prasad Banerji changed many of their ill-defined customs,

imparting to them a new shape. He did not really ask them to abandon all their former 'customs'.

### *Marriage*

Some special features of their marriage customs :—

(i) Before the marriage ceremony takes place, two small swords of iron are made at the bridegroom's house. One of them is sent to the bride's house with the *tattwa* during the *gatraharidra* (i.e. when the ceremonial presents are exchanged during the anointment with turmeric paste). The other is kept in the bridegroom's house. During the ceremony of marriage, these swords are exchanged.

(ii) In the *chhandatala* (place where the bridegroom goes through preliminary ceremonies in the bride's house), four banana plants are set up; at the centre also is placed a banana plant.

(iii) At the commencement of the *nannimukha kriya* (when food is offered to the manes), an earthen vessel is decorated with turmeric paste and lac dye, *alta*. Then the decorated vessel is placed in the room in which the marriage ceremony is to take place. The decorated earthen pot is called *chamak bhanda* ('shining vessel').

Before the commencement of the marriage ceremony, the bride accompanied by five married women, touches the earthen vessel. It is then touched by her five companions, (oil is poured into the vessel, and with a wick) it is lit; then taken to the exact spot where the marriage takes place, i.e. at the centre of the *chhandatala*. The light must be kept burning until the bridegroom reaches his home with the bride (after marriage).

(iv) All expenses in the bride's house are borne by the bridegroom's family.

(v) Early marriage is the rule.

(vi) As the bridegroom's party approaches the bride's house, they shout or beat drums louder and louder in order to announce their arrival. Then the bride's party makes a mock attack on the

bridegroom's party, a mock fight ensues, and the bridegroom is carried in on the lap of the men of the party which is defeated.

The bride is pretentiously kept in hiding, guarded in a room, from where the bridegroom's party brings her out after another mock fight.

After this, the marriage ceremony takes place according to the ordinary Bengal Hindu customs. ( This part of the marriage ceremony has been recently introduced by Shib Banerji ).

The Kurmis are a deeply religious people.

### *Jitastami Vrata*

Kurmis observe the above religious rite on the eighth lunar day of the dark half of the month of Aswin. On the previous day, they only take boiled rice and vegetables or *h a v i s h y a n n a*, while they fast on the day on which the observance is held.

On the night of the eighth moon, all Kurmis in the village gather together with fruits and flowers to be offered to the Sun-god. Then they pray to the Sun to make the coming year a prosperous one. The offerings are laid before a tree which is taken to represent the deity. They also pray that their sons may attain vigour and glory like the Sun. Food is taken only on the following morning.

### *Worship of the Sword*

This is also a custom peculiar to the Kurmi. The ceremony is performed separately in each household on the tenth day of the moon following Durga Puja in autumn.

### *Some General Observations*

(a) In other religious practices, the Kurmis have imitated their Bengali neighbours. They are religious in disposition and revere Brahmins and their *G u r u* or preceptor very much.

(b) The Kurmi are very hospitable.

(c) They are very conservative in the observance of their social customs.

(d) At the head of Kurmi society, in a village, is the Mahato or chief, whose decision is final in matters relating to social observances. Punishments for violation of social rules, or for breach of moral regulations, is of a severe nature.

(e) Kurmis are not divided into sub-castes. All are treated equally.

(f) Kurmis are very hard-working cultivators. They produce much more per acre than their Bengali neighbours. They are mostly owner-farmers. Only under extreme conditions do they hire themselves out as labourers.

(g) Their powerful social regulations prevent them from indulging in drink, theft or other vices. But such vices have begun to corrupt their society recently with a weakening of caste government.

The above statement has been prepared by Puranjoy Bandopadhyay from what I have said to him.

Shiba Prasad Banerji

Santipur

21st March, 1957

## BOOK REVIEWS

**The Yao Village :** A study in the social structure of a Nyasaland tribe, by *J. Clyde Mitchell*. Published on behalf of the Rhodes-Livingstone Institute, Northern Rhodesia by Manchester University Press, 1956, 235 pages.

Dr. Mitchell's volume, based on twenty-five months of field-work among the Yao of Southern Nyasaland, is different in its orientation from the village community studies of American anthropologists in the fact that the writer is not interested in presenting the totality of community life. Dr. Mitchell's attention is strictly limited to the description and analysis of the social structural setting of community life and, within that setting, again, his main interest is in power relations.

The author organizes his presentation of data with reference to a key administrative problem : the role of the village headman in a regional tribal setting. The village is thus studied from two aspects—first as 'a unit within an organized whole—the chiefdom' and secondly, in terms of its own structure. In the above context, Dr. Mitchell offers a special definition of village as 'a discrete cluster of huts occupied by a group of kinsmen who recognize their own identity against similar groups.'

Following the typical British social anthropological tradition, in chapters six and seven, the author brings out in detail the relationship between matrilineage, village-structure and larger political setting.

The most interesting section of the volume is the one that deals with 'Prestige and Rank Among the Village Headmen', where one gets a vivid idea of the dynamics of the political process involving 'the struggle of the headmen for power and prestige, both among themselves and against the chief.'

The book is commendable for its graphic delineation of the structural setting of power relations, for adequate documentation and for able quantification in selected topics. It should be indispensable for the administrator, while a student of culture, interested in knowing more about the contents of behaviour and

the ideational system of a people, may use the above book as a reliable starting point for further investigation.

Surajit Sinha

**Man's Role in Changing the Face of the Earth.** *Edited by W. L. Thomas. University of Chicago Press. Chicago, Illinois. Pp. 1193. \$ 12.50.*

The Wenner-Gren Foundation, since the year of its establishment, has been concerned with rendering aid to the advancement of anthropology as the study of man. The aid has developed into three broad fronts—fellowships and grants-in-aid to professional anthropologists; search for new ideas and techniques in allied disciplines capable of contributing to solution of anthropological problems; broadening the bases of anthropological research by dissemination into other fields of science. This volume is the direct outcome of the second and third facets of the Foundation's programme, a result of an interdisciplinary symposium with international participation.

Therefore, the symposium was a primary objective to an outlining of a volume—a publication of a record to help future generations. The subjects, which were carefully chosen, were tackled with individualistic approach. Background papers from the seventy participants were distributed in advance to all the members, to provide common knowledge to them before the symposium. An admirable procedure, since it would leave time for discussion in the short week from June 16-22, 1955. A loose structure was aimed at, leaving thereby scope for creativity in the hands of the participants. Specialists in some twenty-four conventionally defined disciplines, the individuals had backgrounds from fields of earth sciences, biological sciences, social sciences and humanities and applied fields of administration, city planning etc. Many were connected with universities and others came from private institutions, industry and government.

A compilation has been made of the writings of fifty-three contributors into three well-marked sections of the symposium—Retrospect, Process and Prospect—with the discussions that took place under each group in the ten main sittings conducted under the co-chairmanship of three senior scholars, namely, Professors Carl O. Sauer, Marston Bates and Lewis Mumford, the whole setting was

one where several active and alert minds interested in a common problem pooled their thoughts.

The opening chapter outlines the role of air photography as a means of visual interpretation, by a synoptic view, for analytical approach. A very interesting and scientific synthesis from photographs has been evolved, of which a few very vivid examples are produced. Three chains of transformation are outlined—'I-Thou' to an 'I-It' relationship, or the submergence of the individual; 'Fear and Security' or the transformation from defences to systematization; 'The Changing Scale' as a widening scale of man's response to the environment in present-day planning.

Under the section of Retrospect, the main discussion has followed aspects of development in the history of human economy today. The influence of man during his tenure of the earth is arranged in three main periods. In the discussion of man's deformation of the pristine, the influence of primitive man on vegetation growth by the use of fire is taken up. In the classical period several examples are cited—an efficient standardized artificial environment in China; evidences of higher water-level in Arabia prior to the effect of indirect human activities; historical evidences from Plato indicating changes in Israel and Italy; the changing geography of England in the 5th and 6th centuries affected by the Anglo-Saxon settlements. The modern era presents the principle of plenitude in the increase of population numbers, a problem which can be met with by an economy of universal change, especially in locally closed environments like China and India. The general impression which evolves from this is the idea of man impassive to nature in the past. Nevertheless, a certain unity of nature is admitted, and man's inter-relationship with nature is tied up to such a unity. The impress of subsistence economies is taken up through various stages of evolution. Fire is expressed as an environmental factor for maintaining vegetation in a static situation. Deforestation leading to plough agriculture, evolves from the various techniques, several social orders. Under the discussion of commercial economies, some very interesting observations have been made. Of the case histories put forward, one deals with forested areas, which in the process of transformation into cultivated lands, is reducing the infiltration capacity of the soil; another cites the commercial

exploitation of grasslands into beef cattle resulting in the reduction of protein content and subsequent raising of fats in the meat ; the age-old example of increase of soil erosion contributed to by the commercial exploitation of grasslands in wheat production, and by plantations on hillsides in the humid tropics. In winding up the discussion, however, a redeeming feature is brought forward, namely, that despite changing land surfaces, commercialization has hardly decreased total population. Nevertheless, there are several real conservation problems, as there is a definite limit to nature's capacity for the production of surplus.

The final section of the discussion under Retrospect is a lively participation in the explanation of the rise of cities, and in the contrasting influence of urban and rural cultures in cultural dynamics. There being no antithesis, it is apparently difficult to evaluate the action of cities on the countryside—for it seems the city produces machines for the farmer to produce more food. The parasitic aspect of a city posed by Mumford, being contradicted by the theory of the countryside and city in correlationship, especially in the angle where cities provide certain 'services' for countryside.

One has however to recognize certain factors contributing to environmental change, which are independent of man's action, e.g. ice, sea and land, weather and climate, flood, explosion and magma flow, and earthquake. To review processes of environmental change exercised by man, one has first to understand man in this background of nature. Keeping these facts in view, the background papers under the section of Process, deal with the aspects of change engineered by man in these fields of nature. In influencing the water areas of the earth, changes have been effected by transporting systems and dredging operations, etc. Certain remarkable observations have been made in the alteration of the micro-climates by urbanization. In the biotic communities several modifications are shown especially in the field of artificial culture of new plant communities and hybrids. In the discussion an argument was posed that an evaluation of the degree of change as effected by man was not easy, as changes in nature are dynamic forces. However certain changes are admissible, viz. construction of dams, controlled river flow and thus changed erosion forms and sedimentation.

Finally, in the last section of the symposium, the Prospects of the human race are viewed against the foregoing background of Retrospect and Process. The time-scale in planning schemes of human affairs is an unconquerable factor, defeating the ends of experiments. It seems that studying the spiral of population growth, especially in the western world, the prospect of the peak has long passed by. On the other hand, in the face of a future growth of the underdeveloped world, a threat of the possible limit of raw material consumption has to be encountered. The same theory holds in the use of energy and technological knowledge. However, the role of man can be summed up in Cressey's succinct statement of the 'too much' aspect physically, in Russia. Here the too cold and wet, the too dry and hot, too high and cold and dry regions have been brought under control, in the increase of the agricultural wedge to the east. Therefore the earth has been modified by human action in a combined front of science, technology, economical institutions and also by religion, educational and ethical principles, whereby the dominance of human intelligence is proved. So the discussion swings to a more optimistic note—of man in an idea of continuity—a story, as it were of successive civilizations.

Despite the several fields represented by the participants, the background papers provide an introduction to entirely new lines of inquiry into the problem. It is indeed revealing how the different angles of thought give stimulus to any discussion. And yet, in the discussions, there seems to be an entire lack of professionalism, but rather the presence of a certain spontaneity and collectivity of ideas. Perhaps the rather loose structure of the symposium, where discussions were not pinned down by the background papers, has helped in maintaining the cohesion. The absence of deviation in relevance in the discussions is also remarkable ; due partly no doubt to the effort of the participants themselves as well as in the chairmen of the sessions, to keep the proceedings free from any bias. The resultant volume has therefore achieved its purpose in providing an extremely valuable record for future reference. The extensive bibliographical references for each of the background papers and general detailed index further add to the value of the text.

M. Guha

**Education and Anthropology** : Ed. G. D. Spindler, *Stanford University Press* (1955), *California U.S.A.* Pp. xvii + 302. \$ 5.50

The book is an effort to construct an utilitarian relationship between anthropology and education, and to show how problems of educators can well be solved with the help of anthropological insight and approach. During past decades there has been much of confusion and conflict in various educational theories. Only in the last five years there occurred a remarkable shift among the educational theorists from a 'psychological' orientation to what we call 'cultural' or 'social' orientation. This danger of going from child-centred school to the community-centred school and back again, which has been the sort of experience we have had in education, is one of which educators are extremely aware, and here the anthology has shown how cultural knowledge used by educators and by anthropologists interested in education might help. In a deep sense the book reflects the fruitful use of cross-disciplinary approach in education and anthropology.

The conference from which the book under review has emerged, was held under the joint auspices of the School of Education and the Department of Sociology and Anthropology, and the American Anthropological Association. While attended by a galaxy of anthropologists and educationists, the conference served an important function in defining areas of work in which education can learn from anthropology and can team up with anthropologists in solving educational problems.

A cursory glance at the contents of the book shows that the papers range from 'an introduction to anthropology and education' to 'the meeting of educational and anthropological theory' through the method, process and status of educational research along with some notes on American schooling system. A paper devoted to 'the Supreme Court decision on segregation : educational consequences' makes an interesting section.

There is much in common between educational and anthropological theories, and Theodore Brameld goes on to say that the problems of cultural reality and of response in education to the reality is integral with the much wider problem of 'alternatives' in cultural experiences. The three dimensions of cultural order—the horizontal-vertical dimension of culture in space, the historical dimension in time, and the 'qualitative' dimension of cultural con-

figuration which integrates the first two provide an aesthetic design for a modern philosophy of education and culture.

Three problems emerge from culture concept in education. Firstly, the question of values (here the anthropologist can help educationists clarify the concept of values); secondly, in assessing and coping with resistances to change—resistances that exist in community, in people, and the meta-cultural resistances; and thirdly, in helping to build a design for general education.

But one thing noticeable about the conference is that though educators were well represented, all the papers, except two, came from anthropologists. One wishes that educators had much more to say in the conference which primarily concerned them.

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D. P. Sinha

**Dictionary of Anthropology :** by Charles Winick. *Philosophical Library, Inc. 15E 40th Street, New York 16, N. Y. Pp. 579. \$ 10.*

All students of Anthropology, both Cultural and Physical, Archaeology, Linguistics etc., will welcome the publication of this much-needed dictionary. The author in his Preface has correctly stated that it is not possible to define with assurance technical terms of Cultural Anthropology. Anthropology with its allied branches is a growing science and as such the shortcomings of the present edition, we hope, will be rectified in future editions. In the future edition of the Dictionary we hope that the terms used in Indian Anthropology will find a place in detail. There are a few not quite correct definitions given in the text, such as, on page 230, where, in explaining G h e e, it has been said 'In India it usually comes from goat and sheep milk'. This is not correct, for it is well known that the bulk of g h e e is derived from cow and buffaloe milk. On page 373, while describing the 'Munda', the author has given a confused meaning.

The author has done a pioneering work in this field with moderate success. We hope the book will find a place in the library of every student of Anthropology.

B. C. Roy

**The Paekchong of Korea : A Brief Social History**, by *Herbert Passin*, Tokyo. Pp. 72. *Monumenta Nipponica*, Sophia University, Chiyoda-Ku, Tokyo.

Professor Herbert Passin has described the phenomenon of 'untouchability' as it exists in Korea. The similarity with conditions in India is remarkable. Occupations connected with killing, blood or dirt are considered unholy. It is also significant that basket making is looked upon as a 'low' occupation, as in India. There seems to have been some transfer of ideas from one to the other ; and it is not unlikely that India was the original sinner. Prof. Passin has also traced the history of untouchable castes through the ages ; and it is evident that some of the 'low' castes were recruited from among subjugated peoples. The same is true of India. Japanese sources have been mainly used, and the author has modestly stated that he was unable to use Korean sources. This has not however limited his enquiry very much, because most of the materials connected with Korean history are available in the Japanese language.

Students of caste in India will find the pamphlet useful and suggestive.

N. K. Bose

**Primitive Art**, by *Franz Boas*. New Dover Edition (Unabridged). Pp. 372 + Table of contents + Explanation of Plates + Index. \$ 1'95.

Ever since its first publication in 1927 Franz Boas's *Primitive Art* has been recognized as an authoritative text-book on the subject. The author has examined the entire field of primitive art in all its rich details including plastic and graphic arts with their representative and symbolic variations, and has also reviewed the field of primitive literature, music and dance. His study, exhaustive in itself, has been amply supported by a wealth of photographs, drawings and diagrams ( numbering more than 323 ) that go to make the book particularly endearing to all connoisseurs of art. One special feature of the book lies in its detailed examination of the art of the north Pacific coast of North America, a theme in which Boas specialized. There are also separate and exhaustive chapters on primitive art and symbolism that deserve careful study.

The fundamental difficulty with Boas is, that he never had any

occasion to come in contact with the Freudian and post-Freudian approach in the interpretation of art and symbolism. Thus his conclusions on primitive symbolism and rhythm strike one as strangely limited, in as much as he believes that symbolism in primitive art is something like 'reading in of realistic meanings into geometric forms'. Neither does he give any credit to the idea of emotional sequence in primitive art but holds on the contrary.....'that the stylistic form is decisive in which representations (i. e. symbolic expressions) are rendered.' This is a view with which many would prefer to disagree at present.

The approach of the author is, however, scientific in the strict sense of the term, as he has nowhere shown any propensity to prove any preconceived notion derived from adventitious sources. On the contrary he gives up any assumptions that he may have previously made whenever he faces any contrary evidence. Throughout his study he confines himself to an objective survey of first-hand materials and his limitations, if any, are more due to his scientific regard for objective truth than for any lack of them. It is just for this, that the present book will be considered as a 'must' reading for all who are interested in the matter.

Asit Kumar

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